University News

Special Science Congress Number

Dr. Pranab Ganguly

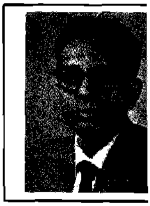
Prof. B.D. Tikkiwal

Prof. P.N. Srivastava

Prof. K.K. Nanda

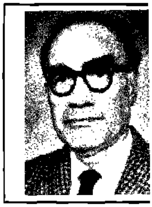
Prof. S.R. Dasgupta

Dr. H.N. Sethna



Prof. J.N. Bhar

Prof. A.S. Patel



Prof. R.P. Chaudhuri

Prof. P. Dayal

Dr. M.K.V. Bappu

Dr. S.N. Ray

Prof. C.N.R. Rao

Prof. M.K. Singal

INDIAN INSTITUTES OF TECHNOLOGY

BOMBAY, DELHI, KANPUR, KHARAGPUR, MADRAS AND BHU-INSTITUTE OF TECHNOLOGY, VARANASI

Advertisement No. 861

Admission Notice 1977

Admission to the first-year class of the following courses will be made on the basis of the Joint Entrance Examination to be held on 3rd (Tuesday) and 4th (Wednesday) May, 1977 :

(i) Five-year integrated Bachelor's degree course in Aeronautical, Agricultural, Chemical, Ceramic, Civil, Electrical, Electronics and Electrical Communications, Mechanical, Metallurgical and Mining Engineering, Naval Architecture, Textile Technology and Architecture;

(ii) Five year integrated M.S./M.Sc. course in Chemistry, Mathematics, Physics, Applied Geology and Exploration Geophysics;

(iii) Three-year B.Sc. Honours courses in Chemistry, Physics, Mathematics and Earth Sciences.

Candidates who have passed or are due to appear at the Higher Secondary/ Pre-University examination with Chemistry, Mathematics, and Physics or any other examination under the old pattern of education recognised by the Institutes as equivalent thereto as listed in the 'INSTRUCTIONS TO CANDIDATES' are eligible to apply.

Candidates with qualifications 10+2 under the new pattern of education 10+2+3 or any other examination recognised by the Institute as equivalent as listed in the Supplementary Instructions and who desire to get one year exemption will be required to be successful in the Joint Entrance Examination to be held on 3rd and 4th May 1977 and appear for two additional papers prescribed for the Joint Advanced Test for seeking exemption, on 27th July 1977, as given in the 'SUPPLEMENTARY INSTRUCTIONS TO CANDIDATES.' The exemption of one year is not admissible for Science courses mentioned above.

Candidates must not be more than 21 years of age on 1st October 1977. Upper age limit is relaxable by five years in the case of Scheduled Caste and Scheduled Tribe candidates and by three years for repatriates, new migrants and foreign nationals.

Reservation of seats : 15% for Scheduled Castes and 5% for Scheduled Tribes with certain financial concessions.

One seat at each Institute is reserved for children of Defence personnel who laid down their lives in action for defence of India, provided they are eligible for the Joint Entrance Examination and qualify for it.

LAST DATE OF ISSUE OF APPLICATION FORMS	: February 21, 1977
LAST DATE OF RECEIPT OF COMPLETED APPLICATION	: February 28, 1977

Detailed information and application form can be had from the following offices, either in person or by post on written request along with a self-addressed unstamped envelope of at least 28 × 13 cm. size superscribed 'admission to B. Tech./M.Sc./M.S./B.Sc. Courses' together with an Indian Postal Order of Re.1/- (Rupee One only) payable to IITs in their respective zonal offices.

Receipt of application forms on a certain date shall not be considered as a valid reason for late submission.

INDIRA KALA SANGIT VISHWA-VIDYALAYA, KHAIRAGARH (MP)

(University of Music and Fine Arts)

Applications are invited for the following posts in the Scales of pay mentioned against each, viz :—

One Professor
(in any specialised field of Music to provide leadership in the discipline of Music).
Scale of Pay.
Rs. 1000-50-1500/-.
(Likely to be revised)

Three Readers
(One each for Kathak Dance, Painting and Folk Music/Art Department).
Scale of Pay.
Rs. 700-40-1100/-.
(Likely to be revised)

Three Lecturers
(One each in Sitar, Vocal Music and Musicology).
Scale of Pay.
Rs 400-30-640-EB-40-800/-.
(Likely to be revised)

Two Technicians
(One each for making and repairing String and Drum instruments).
Scale of Pay.
Rs. 246-6-270-10-350-EB-12½-400-20-460/- (Revised).

One Tabla Instructor
One Research Assistant
Scale of Pay.
Rs. 350-12½-400-20-500-EB-25-600/-.
(Revised)

One Tabla Accompanist
Scale of Pay.
Rs. 280-10-350-12½-400-20-480/—
(Revised)

All the posts are permanent and they carry D.A. and benefits of Provident Fund according to University Rules. Appointees will be on probation for a period of 1 to 2 years.

Details regarding Qualifications and prescribed Forms may be obtained from the Registrar by sending Postal Order for Rs. 10/- for Professor Rs. 7/- for Readers, Rs. 5/- for Lecturers and Rs. 3/- for the remaining posts together with a self addressed Re. 1/- stamped envelope of 23 × 10 Cms. Under exceptional circumstances, any of the prescribed qualifications may be relaxed at the discretion of the University and it reserves the right to consider and appoint a person who may not have applied. For Vocal Music, those who have applied in response to the Advertisement in May, 1976, need not apply again.

Last date for receipt of duly completed applications is **25th January, 1977.** Scheduled Caste and Scheduled Tribes Candidates will be given preference.

Khairagarh, dated the 6th December, 1976.

D. K. Ghosh
Registrar

UNIVERSITY NEWS

Vol. XV JANUARY

No. 1 ● 1977

A Fortnightly Chronicle of Higher Education

Price 80 Paise

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Editor : ANJNI KUMAR

Science and Spirituality

Extracts from the convocation address of Madurai University delivered by Shri C. Subramaniam, Union Finance Minister

The most distinctive feature of the modern world is the phenomenal development of science and technology. This has given Man deep insights into Nature and has enabled him to exploit it for intensive utilisation of all available resources and for production of commodities and services on such a tremendous scale that for the first time in the history of the world, it has come within the realm of possibility to provide good and abundant life to every human being. It has given Man tremendous power to create or destroy. It has enabled him to fly, to land on the Moon and to explore the surface of Mars; to cut down distances through modern communication media and transport systems; to fight illness and alleviate suffering and to prolong life; to raise material standards of living of the people to levels which could not even have been dreamt of earlier. There is no reason in our scientific age for any one to remain unenlightened: access of the people to education and culture has tremendously increased. In fact, the actual achievements of today have far surpassed what the people of the ancient or mediaeval times regarded as miracles or treated as mere dreams and phantasies.

These great changes have resulted from a number of factors which are characteristic of the modern age. The first is the tremendous growth of science due to the emphasis placed upon it in education, to the large number of scientists who are pursuing research in science as a whole-time career (it has been stated that more than ninety per cent of the scientists that ever lived in the world are now living in our generation and doing scientific research on a whole-time basis) and to the immense investment that all modern nations are making in scientific research. Secondly, this development of science is being continuously applied to improve technology which, in its turn, has revolutionalised agriculture, created an entire superstructure of modern industry, and radically transformed all services like transport, communication, education health or housing. The wealth, power and standards of living of a nation have therefore become co-terminous with its command over science and technology. Thirdly, the new technology is itself leading to greater progress of science and a golden circle has been established for quite some time wherein advances in science lead to improvements in technology which, in their turn lead to still further advances in science. Scientific knowledge is therefore growing at a tremendous rate at present and is being doubled every ten years or even earlier. Gone are the days when a university degree, once acquired, stood in good stead throughout one's life. The obsolescence of knowledge is now so rapid that, in the opinion of Dr. D.S. Kothari,

(Contd. on page 12)

64th Science Congress

The 64th annual session of The Indian Science Congress Association being held at Bhubaneswar from January 3 to 7, 1977

About the Sectional Presidents whose photographs appear on the cover page......

Dr. Homi N. Sethna, General President, 64th Indian Science Congress was born on August 24, 1923. He is at present Chairman of the Atomic Energy Commission, Bombay. He took the B.Sc. Degree of the University of Bombay in 1942 and then took the B. Sc. (Tech.) from the Department of Chemical Technology of the same University two years later. He took the M. S. E. Degree from the University of Michigan, U.S.A. in 1946.

After completing university education, Dr. Sethna joined Indian Rare Earths Ltd., a Govt.of India Undertaking in 1949, and in 1959 joined the Atomic Energy Establishment, Trombay (now known as the Bhabha Atomic Research Centre) India, as its Chief Scientific Officer. Later he became the Director of the Engineering Group in the Trombay Establishment. He was appointed Director of the Bhabha Atomic Research Centre and member for Research and Development, Atomic Energy Commission, India in 1966. Also, he held the position of Director, Power Projects Engineering Division, with the responsibility for the construction of the Rajasthan Atomic Power Station and the Madras Atomic Power Station.

To honour him for his remarkable contribution he was conferred D.Sc. (Honoris Causa) Degree by the Marathwada University in 1973; LL. D. (Honoris Causa) Degree by the Bombay University in 1974; Doctorate in Technology (Honoris Causa) Degree by the Jawaharlal Nehru Technological University, Hyderabad in 1974; Doctorate in Science (Honoris Causa) Degree by the Roorkee University in 1975; D.Sc. (Honoris Causa) Degree by the Karnataka University in 1975; D.Sc. (Honoris Causa) Degree by the Indian Institute of Technology, Bombay in 1975; D.Sc. (Honoris Causa) Degree by the Orissa University of Agriculture and Technology, Bhubaneswar in 1976; and D. Sc. (Honoris Causa) Degree by the University of Mysore in 1976. He is a Fellow of Indian Academy of Science (F.A.Sc.); of Institution of Engineers (F. I. E.); and of the Indian National Science Academy (F. N. A.).

Dr. Sethna was awarded Padma Shri in 1959 for outstanding work in Engineering Sciences; Shanti Swarup Bhatnagar Memorial Award in 1960; Padma Bhushan in 1966, and Padma Vibhushan in 1975. Also, he was awarded the Sesquicentinnial Award of the University of Michigan in 1967 for "Knowledge, Wisdom and Courage to Serve"; Sir Walter Puckey Prize for the year 1971 by the Institution of Production Engineers for outstanding contributions to production engineering, and Sir William Jones Memorial Medal for the year 1974 by the Asiatic Society of Calcutta. He had delivered Twelfth Sir Mokshagundam Visvesvaraya Lecture in 1969.

Dr. Sethna had the full technical responsibility for the setting up of the plant at Alwaye for the separation of rare earths from Monazite sands of Kerala which marked the beginning in the exploitation of our resources of nuclear materials. As a logical sequence of this, he completed the construction at Trombay of the thorium plant and the plant for the production of nuclear grade uranium metal. These plants formed the firm base for the production of naturally occurring fissile and fertile material. His first major assignment in 1959 was a challenging task of setting up the Plutonium Plant at Trombay. This remotely operated, high instrumented plant was designed and constructed entirely by Indian scientists and engineers under Dr. Sethna as the Project Engineer and was completed on August 1, 1964 within the original estimated cost and within the scheduled time. Concurrently the construction of the Uranium Mill at Jaduguda progressed under his guidance and was completed in 1967. All these projects were designed and constructed under the guidance of Dr. Sethna without recourse to foreign consultancy. Among his other assignments during this period was the Project Managership of a 40MW reactor called the Canada-India Reactor during its formative year in 1956-1958.

He was Deputy Secretary General to the United Nations International Conference on Peaceful Uses of Atomic Energy held in Geneva in 1958 He is a member of the Study Team on Scientific Departments constituted by the Administrative Reforms Commission, Govt. of India, and a member of the U. N. Secretary-General's Committee of Specialists to prepare a full report on all possible contributions of nuclear technology to the economic and scientific advancement of developing countries. Also, he is a member of U.N. Scientific Advisory Committee, and advisory Committee of the International Atomic Energy Agency. He was Chairman of the Fertilizer Corporation of India Ltd. till March, 1973. He is also Chairman of the Electronics Corporation of India Ltd.

Prof. K. K, Nanda, President, Section of Botany was born on January 1, 1918. He obtained the B.Sc. Degree from the Government College, Lahore in 1939; M Sc.Degree (Agricultural Botany) with a first class from the Banaras Hindu University, in 1941 and Ph.D. Degree from the Bombay University in 1947.

Dr. Nanda worked as Associate Professor and Lecturer in Agra and Delhi Universities respectively from 1947 to 1960; *as Senior Research Officer (Plant* Physiology) at the Forest Research Institute, Dehra Dun from April 1960 to March, 1963; as Plant Physiologist at the Indian Agricultural Research Institute, New Delhi from April to August, 1963 and then as Professor and since 1968 as Senior Professor of Plant **Physiology in the Panjab University at Chandigarh** to hold the first Chair ever set up in Plant Physiology in any university in this country.

Dr. Nanda was awarded Rafi Ahmed Kidwai Memorial Prize for agricultural research for the biennium 1972-73 by the Indian Council of Agricultural Reserch for his outstanding contributions in plant physiology; J. J. Chinoy Gold Medals for the best research paper published in Indian Journal *of Plant Physiology during the* year 1969 and again in 1974; Certificate of appreciation by USDA on the commendable work done in the PL—480 research project A7—FS—11 on the "Use of auxins in vegetative reproduction of Forest Plants"; Fulbright-Smith Mundt post-doctoral **scholarship during 1954-56**; and Scholarship from Sir Dorabji and Sir Ratten Ji Tata Trust Funds for Ph D.

Dr. Nanda is a Fellow of Indian National Science Academy (F.N.A.), and of the Indian Academy of Sciences (F.A.Sc.). He was President of the Indian Society for Plant Physiology for the year 1966-67.

Dr. Nanda has been actively engaged in researches in 'Circa*dian rhythms*', *'Correlations* between growth and development', 'Physiology of flowering' and 'Adventitious root formation'. He was the first to start work in forest physiology and has set up a strong school of plant physiology in this country He has about 200 research papers to his credit.

Prof. P.N. Srivastava, President, Section of Zoology, Entomology and Fisheries was born on July 1, 1927. He had his college and university education at Allahabad. After passing his M Sc examination in 1949 in Ist class standing First in order of merit from the University of Allahabad, he started research work on morphology and histology of air bladder in fishes under the supervision of late Prof. D. R. Bhattacharya, the then Vice-Chancellor of the University, and was awarded the D. Phil. Degree in 1951. He joined the Department of Zoology, University of Allahabad as Assistant Professor in 1952.

Having been selected for the post-doctoral Fellowship of the National Research Council of Canada in 1958, he joined the Institute of Oceanography, Dalhousie University, Halifax, and entered into the field of Radiation Biology. He has a wide post-doctoral experience in some of the internationally known Laboratories. Besides undertaking training in Radiation Biology, he worked mainly in the area of mineral metabolism and its endocrinology control in fishes for two years. He has also worked for shorter durations at the Bingham Oceanographic Laboratory (1960), Yale University (USA) as Research Associate; National Institute of Radiological Sciences (1963), Chiba, Japan and Department of Physical Biology (1965), Cornell University (USA) as Visiting Scientist of the International Atomic Energy Agency; Paterson Laboratories and Holt Radium Institute (1965), Manchester (UK) as Visiting Fellow of the British Council; Institute of Animal Radiation Biology (1969), Rome, as Visiting Scientist of the Italian Nuclear Research Establishment; Department of Experimental Radiology, Faculty of Medicine (1975), Kyoto University Japan, as Visiting Professor. He has participated in many Congresses and Symposia, both in India and abroad, and has presided over a number of Sessions.

He joined the Department of Zoology, University of Rajasthan, Jaipur, as Reader in 1961 and was elevated to the rank of Professor in 1967. *He established one of* the erstwhile Radiation Biology Laboratory in the country. Under his leadership, teaching in Radiation Biology for the M. Sc. class was initiated there for the first time.

He has worked mainly in the areas of mineral metabolism and its endocrinological control in fishes, effect of radiation on the reproductive physiology of a number of animals; histopathological, histochemical and biochemical studies on the effect of radiophosphorus in mice during prenatal and post-natal development. Presently, he is engaged in studying the effect of tritiated water and the mechanism of action of certain radioprotective drugs in mice.

On the invitation of the Jawaharlal Nehru University, New Delhi, he joined the School of Life Sciences in March 1975 and is continuing there as the Dean of the School.

Dr B D Tikkiwal President, Section of Statistics, was born in January 1925 in Jaipur Rajasthan With first class throughout and with distinction in Mathematics right from High School he obtained M Sc in Maths from the University of Rajasthan in 1948 in first division and toped the list He was awarded Gold Medal in B Sc and M Sc for his excellent performance He obtained Diploma in Agricultural Statistics from the Institute of Agricultural Research Statistics in 1951 He was awarded Gold Medal for the pioneer work contained in the Diploma thesis on Theory of Successive Sampling This work made a major break through in the area of the study now described as the study of dynamic populations

Dr Tikkiwal first went to Columbia University, New York, USA, to study Mathematical Statistics and then Experimental Statistics at the University of North Carolina at Raleigh Campus during Sept 1952 to Dec 1955 He obtained Ph D in Experimental Statistics from the later University in Aug 1955 and was elected member in the same year of the Society of Sigma XI the American Society devoted to the promotion of Research in Science in recognition of the work contained in his Ph D thesis in Multiphase Successive Sampling While working for his Ph D in USA he had several opportunities of applying statistics to other disciplines In particular he had occasion to work in Raleigh with a young and bright Germany lady Dr H Hirschmann now Senior Professor at the same place on some nematode problem, of interest to agricultural area around Raleigh This work was published by her in the Proceedings of the Helminthological Society of Washington (Vol 23 1956) with proper acknowledgement for statistical work to him

It is with this background that Dr Tikkiwal returned to India to join as Reader and Head of the Department of Statistics Karnatak University Dharwar in June 1956 He moved to the University of Rajasthan in the same capacity in March 1962 He was promoted here as Professor in 1966 and Senior Professor in 1973 In addition to his position as Head he had other assignment in the University as the Director School of Social Sciences (1967 68) as Dean University Cluster of Colleges (1975 76)

Dr Pranab Ganguly President Section of Anthropology and Archaeology was born in 1929 in Varanasi Uttar Pradesh and was educated in Calcutta He matriculated in first division in 1945 and graduated with Honours in Anthropology in 1949 from Calcutta University From the same University he obtained his M Sc in 1951 Ph D in 1966 and D Sc in 1973 He joined the Anthropological Survey of India in 1957 and was stationed in Port Blair Calcutta and Shillong For some time he worked on health and family planning problems in the Directorate General of Health Services New Delhi (1965 66) and thereafter in the Ministry of Health & Family Planning Government of India New Delhi (1966 69)

Dr Ganguly is currently Superintending Anthropologist Physical Anthropology Division Anthropological Survey of India Calcutta He has done much original research in the Andaman and Nicobar Islands Assam Maharashtra and Uttar Pradesh His research interests include physical anthropology social biology and population studies, and he has published widely in these fields

The Societe d Anthroplogie of Paris awarded the Prix Bertillon to Dr Ganguly in 1973 for his study of human physique in relation to socio economic environment This work demonstrated the applicability of experimental designs in anthropological field research In 1975 the Calcutta University awarded him Sir Asutosh Mookerjee Gold Medal for his work on Andaman Negritos and in the same year he also received the [illegible] Immunity Research Prize and Gold Medal for his contribution on the secular trend in body height of the Indian population In 1976 Dr Ganguly received the Griffith Memorial Prize from Calcutta University for his research on human micro variation in the Nicobar Islands

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Prof S R Dasgupta, President Section of Medical & Veterinary Sciences had his medical education and training in Burma He built up his research career in the School of Tropical Medicine Calcutta where his pioneering work in Psychotropic drugs was undertaken His contributions on chlorpromazine were published and accepted all over the scientific world and on this work he was admitted to D Phil (Ph D) Degree of Calcutta University in 1956 These and allied studies by other workers led to the establishment of the new discipline of Psychopharmacology Moreover his researches in the field of neurophysiology led to the important discovery of the hypothalamic panting centre in animals On an invitation from the celebrated Professor H W Magoun he worked in the University of California, Los Angeles as Visiting Scientist He made special study of Y amino butyric acid and discovered its inhibitory role in the central nervous system He made intensive studies of intracerebrally administered various psychotropic, drugs e g LSD, mescaline and chlorpromazine in conscious animals On returning to India he was posted to the Calcutta National Medical College as Professor of Pharmacology but within a year his services were requisitioned by the University of Calcutta to Head the Department of Pharmacology of the newly established Dr B.C. Roy Post Graduate Institute of Basic Medical Sciences. Besides organising the Department he continued his studies on psychopharmacology and also opened newer branches to investigate into the etiopathogenesis of pepticulcer and to propagate research in the chemistry and pharmacology of natural products. His observations on the role of 5- Hydroxytryptamine in the causation of experimental ulcer, studies on Benzodiazepines and the effect of *Cannabis indica* on the behaviour of Rhesus monkies deserve special mention. He retired as Professor of Pharmacology in in the year 1972.

Dr. Ambalal S. Patel, President Psychology&Educational Sciences, is at present the Professor & Head of the Department of Psychology and the Dean of the Faculty of Education and Psychology, M.S. University of Baroda. Soon after his first graduation in 1940 he started serving as a teacher in the secondary high schools. In 1947 he was appointed as a Lecturer in the Faculty of Education and Psychology, M.S. University of Baroda.

In 1954, he went abroad for advanced studies in Psychology at the University of Wisconsin in U.S.A. and during his stay of three years there he obtained M. Sc. (Psy.). M.S. (Edu. Guid.), and Ph D. (Exptl. Psy.) with distinction.

After his return from U.S.A. in 1957, he continued in the M. S. University of Baroda as a Reader in Psychology. He was the first Head and Co-ordinator of the Centre of Advanced Study in Education on his being appointed as the Professor of Educational Psychology at the Faculty in 1964. Since 1975 he has been additionally the Dean of the Faculty of Education and Psychology at Baroda.

Dr Patel's special fields of study are : Experimental Psychology and experimental education, social psychology, guidance and counselling, research methodology, psychometrics and mental measurement He has been holding professional memberships in a wide range of educational and psychological associations in India and abroad. Professor Patel has travelled extensively in most of the countries of the world to visit research institutes under different schemes, and also participated in a number of International Congresses of Psychology and Education abroad. In addition to his research guidance to large number of post-graduate students and Ph. D. scholars, Professor Patel's outstanding work includes more than 150 publications in the field of education and psychology. Besides his academic contributions, Dr. Patel's other co-curricular interests are sports, organizations of student associations, youth camps, social service and activities for village uplift,

In brief, Dr. Patel is an ardent student of learning, a well-versed researcher, a teacher most popular among the young and a public social worker with love of labour.

Prof. P. Dayal, President, Section of Geology & Geography, was born on August 15, 1920 in village Bind of Nalanda District, Bihar. He had his education in the Universities of Patna, Aligarh & London. He started his teaching career as a Lecturer in Geography in H.D. Jain College, Arrah in 1942 & subsequently served in the University of Ceylon, Banaras Hindu University and Osmania University. In 1951 he was called upon to head and organise the newly started post-graduate department of Geography in Patna University. He was appointed University Professor and Head of the Department of Geography, Patna University in 1959 and Senior University Professor in 1966. Under his leadership the Department of Geography of Patna University has developed into one of the leading centres of geographical research and training in India Major research projects completed under his guidance include the Regional Diagnostic Survey of the Upper Damodar Valley Region—a project of the Planning Commission, three Terrain Evaluation Projects of the Ministry of Defence, Government of India and Land Utilisation Survey of three blocks of Patna District. During this period Prof. Dayal also worked as Simon Research Fellow, University of Manchester (1956-57), Principal, Patna College (1965-66 and 1971-73) and Chairman, Bihar Secondary Education Board (1974-75). He was Dean, Faculty of Arts, Patna University (1964-66) and Dean, Faculty of Commerce (1965-66 and 1971-73). He was President, Indian Council of Geographers in 1963-64 and Editor of its Transactions from 1963 to 1969. He has been a member of the Indian National Committee for Geography, member of the U.G.C. Geography Review Committee, and Geographical consultant to the Irrigation Commission, Government of India.

His main field of interest has been Economic Geography and Regional Development. He is Vice-Chancellor, Magadh University, Bodh-Gaya since August, 1975. He has travelled widely and has visited U.K., U.S.A., Canada, Australia and New Zealand besides several other European and Asian countries.

Dr. M.K. V. Bappu, President, Section of Physics was born on August 10, 1927 at Madras. He had both his school and early college education at Hyderabad. Here at the Nizam College, he obtained the B. Sc., and M.Sc., degrees in Physics of the Madras University, the latter based on a thesis pertaining to the photoconductivity of Amethyst Quartz carried out under the guidance of Prof. J.C. Kamesvara Rav. An award of a Government Foreign Scholarship enabled him to join in 1949 the Harvard University in its Department of Astronomy. Dr. Bappu obtained his Ph.D in astrophysics at Harvard in 1951 with a thesis entitled "The Problem of Wolf-Rayet Atmospheres." He spent the following year as Carnagie Post-doctoral Fellow at the Mount Wilson and Palomar Observatories.

Soon after his return to India in late 1952, Dr. Bappu was awarded the Senior Research Fellowship of the National Institute of Sciences of India. In 1954 he was appointed Director of the Uttar Pradesh State Observatory; he held this post until 1960 when he moved over to his present position at Kodaikanal as the Director of the Indian Institute of Astrophysics.

Dr. Bappu's principal research interests are in astronomical spectroscopy. These encompass a diverse range of star temperatures and luminosity. He is well known for his studies of the spectra of Wolf Rayet stars. With Olin Wilson he discovered a characteristic of emission-line. behaviour in the K-line of ionized calcium that correlates well with the visual luminosity of the star; this phenomenon now known as the Wilson-Bappu effect ushered in the concept of stellar chromospheres and their dependence on stellar age, stellar rotation and surface magnetic fields. Recent work at Kodaikanal and at Kavalur has led to the indentification of the agency responsible for such behaviour in the case of the sun, and has been extended to the stellar case for the detection of large scale active regions on the surfaces of the stars.

Dr. Bappu has also been engaged for a long time in studies of the physics of comets. A co-discoverer of Comet Bappu-Bok-Newkirk, while still a student at Harvard in 1949, his studies on the polarization of cometary rediation and spectrophotometry of cometary emission have yielded much information on effects of the solar wind on cometary behaviour.

Dr. S. N. Ray, President, Section of Physiology, who comes from a distinguished educationist family, had his early schooling at RAJSHAHI (now in Bangladesh), where he was born on 27th December, 1925. Later, he moved to Dacca and passed both the High School and Intermediate in Science Examinations from Board of Intermediate and Secondary Education, Dacca. He graduated from Krishnagar College under Calcutta University in pure science group in 1946 and obtained the Licenciate Medical Qualification from NIL RATAN SARKAR MEDICAL SCHOOL & HOSPITAL simultaneously with a Honours Degree in Physiology from Presidency College, Calcutta in the year 1950. After obtaining the M. Sc. degree in Physiology in 1952, he carried out research work in the Physiology Department of Presidency College and Bengal Veterinary College, Calcutta, under the guidance of Prof. D P. Sadhu and received the D.Phil (Science) Degree in 1956.

Dr. Ray joined the then Defence Science Organisation (now Defence Research and Development Organisation), under Ministry of Defence, as Junior Scientific Officer (Physiology) in September 1954. He is at present the seniormost Physiologist having the rank of Principal Scientific Officer, which he is holding since March 1970. While in DRDO, Dr Ray had undergone about 27 months specialised post-graduate training and research in Neurophysiology, Electroencephalography and Electromyography at the Montreal Neurological Institute, McGill University, Canada and at the Institute of Neurophysiology, University of Copenhagen, Denmark, under Prof. Herbert Jasper and Prof. Fritz Buchthal.

During the last twentytwo years as Defence Scientist, Dr. Ray made a substantial contribution in different aspects/fields of Human Physiology.

Professor C.N.R Rao, President, Section of Chemistry, obtained his M.Sc. degree from Banaras Hindu University, Ph. D. from Purdue University and D.Sc. from the University of Mysore. He is Professor of Chemistry at the Indian Institute of Technology, Kanpur. He was recently Common-wealth Visiting Professor at the University of Oxford and Fellow of St. Catherine's College, Oxford. He was also a Professor at Purdue University and a member of the research staff of the University of California at Berkeley.

Professor Rao has published a large number of original papers and reviews in the areas of molecular structure, molecular spectroscopy, and solid state chemistry. He has written several books published by Van Nostrand-Reinhold, Butterworths, Plenum Press, Academic Press and Marcel Dekker. Professor Rao is on the editorial boards of eight international journals, dealing with chemical physics, spectroscopy and solid state. He is a member of the Executive Committee of the Committee on Data on Science and Technology of ICSU. He is an Associate Member of the Commission on Spectroscopy of International Union of Pure and Applied Chemistry Professor Rao is involved in a number of national and international programmes in chemical education and is now the Chairman of the Committee on Teaching of Chemistry of the International Union of Pure and Applied Chemistry. He was a member of the National Committee on Science and Technology and continues to be associated with DST, CSIR, UGC, DAE and other organizations in several capacities. Until recently, he was Vice-President of the U. N. Committee on Science and Technology. He has been Chairman of Hindustan Insecticides Ltd. a public sector undertaking.

Professor Rao is a Fellow of the Indian Academy of Sciences, Indian National Science Academy and the Royal Institute of Chemistry, London. He is also Vice-President of the Indian Academy of Sciences. In 1967, he was awarded the Marlow Medal by the Faraday Society, England, for outstanding research work in physical chemistry. The Bhatnagar Award in Chemical Sciences was bestowed on him by the CSIR (India) in 1968. He received the first Yeddanapalli Medal and Prize of the Indian Chemical Society for outstanding contributions in physical chemistry in 1973. He was awarded the Jawaharlal Nehru Fellowship in 1973. The President of India awarded the national honour, 'Padma Shri', in January 1974. The University of Calcutta has awarded him the 'Acharyya P.C. Ray Medal' in 1975.

Professor M. K. Singal President Section of Mathematics was born on 10th November 1932. He was brought up and educated at Delhi. He has had a uniformly brilliant academic record. He held the All India Entrance Scholarship for the years 1945-48 and the All India Post Graduate Scholarship for Studying Law during the years 1948-50. On the basis of his B. A. Honours result he was awarded the Bhola Nath Gold Medal for the year 1948 In 1952, he passed the M.A. (Maths.) examination of the University of Delhi securing 90% marks and standing first in order of merit in the University of Delhi. In 1952, he joined the staff of Ramjas College, Delhi as a lecturer in Mathematics. In 1958, Professor Singal was awarded Ph.D. by the University of Delhi for his thesis entitled 'Differential Geometry of Riemannian and Generalized Riemannian Spaces' written under the supervision of Professor Ram Behari. In 1961, he was awarded the Union Territories Scholarship of the Government of India for higher studies abroad. In 1964, he was appointed Reader in Mathematics at Univrrsity of Delhi. In 1969, he was appointed professor and Head, Department of Mathematics, Meerut University, which position he is holding at present.

Professor Singal has travelled widely and lectured extensively. In 1963, he went to U. S A. as a visiting Assistant Professor at the University of Illinois for one year. In 1972, he went to U. K. to attend the Second International Conference on Mathematical Education at Exeter, where he presided over a session of the working group on Mathematics Education in Developing Countries. During this trip he visited several European countries

Professor R.P. Chaudhuri, President, Section of Agricultural Sciences, was born at Chenga in Kamrop district of Assam. He matriculated from Government High Schol, Barpeta, Assam and passed I.Sc. examination of Calcutta University in 1940 from Cotton College, Gauhati. He took his B.Sc. (Hons) and M.Sc. degree of Calcutta University from the University College of Science and Technology, in 1942 and 1944 respectively standing 1st and obtained 1st class in Zoology in both the examinations. Then immediately after the Second World War he went abroad and from 1946 to 1948 he conducted research on Virus Entomology at Rothamsted Experimental Station, Harpenden, England under the guidance of Sir Fredrick C. Bawden FRS and obtained Ph.D. degree in 1948 from the University of London.

The same year, after his return from the U. K. Dr. Chaudhuri was appointed as Assistant Insect Epidemiologist in the Division of Entomology, Indian Agricultural Research Institute, New Delhi. In 1951 he was appointed as Entomologist in charge of the Entomology Section of the newly started Central Potato Research Institute under the Ministry of Food and Agriculture, Government of India. Later he was transferred to the Indian Veterinary Research Institute, as the Research Officer in charge of the Entomology Section of the Division of Parasitology, and he also acted as Head of this Division for about three years. In 1970 he was appointed as head of the Division of Entomology at Central Potato Restarch Institute, Simla under the ICAR. In 1974 Dr. Chaudhuri joined the University of Gauhati on deputation from the ICAR, as the Professor and Head of its Department of Zoology.

Professor Chaudhuri is one of the Senior Entomologist in this country who has contributed to the knowledge about pests and pests control in a vaterity of ways. It is Professor Chaudhuri's work on population dynamics of aphid vectors of Potato viruses in this country which has enabled the Central Potato Research Institute to evolve well known "Seed Plot" technique which has made it possible to grow disease free Seed potato in plains of India and thus to develop Potato industry in the country in its present scale.

Prof. J. N. Bhar, President, Section of Engineering Sciences was born on July 20, 1911, at Chandannagar, West Bengal. He received the M.Sc. degree in Physics from the University of Calcutta in 1934 and was awarded the D.Sc. degree of the same University in 1939 for his original researches on the ionosphere.

After serving for some time as Secretary of the Radio Research Committee of the Council of Scientific and Industrial Research India, he joined the University of Calcutta as a Lecturer in 1938 and was made a Reader in 1949. In 1957, he was appointed Sir Rashbehary Ghose Professor of Physics and Head of the Institute of Radio Physics and Electronics and in that position he directed the teaching, research and development programmes of the Institute. In 1961, he was elected Dean of the Faculty of Technology, and in 1973 he became the Dean of the Faculty of Engineering; he was appointed Director, Centre of Advanced Study in Radio Physics and Electronics, University of Calcutta, since its inception in 1963. He retired from service on July 31, 1976.

One of the earliest entrants in the field of Ionosphere research in India, Prof. Bhar was actively associated in building up the Ionosphere Field Station at Calcutta, the first of its kind in the East. His important contributions in the field include discovery of radio reflections from low heights of the ionosphere, survey of ionospheric conditions in subtropical regions and their correlation with certain geophysical and geomagnatic phenomena. His explanation of the formation of the F-region of the ionosphere and its stratification has been particularly helpful in clarifying the problem of ionospheric layer formation

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Invitation from B.I.T.S.

The Birla Institute of Technology and Science is a privately supported all-India technological institution of higher learning. Having the status of a deemed university it awards degrees in the disciplines of engineering, technology, science, humanities and social sciences. Besides organising doctoral programmes leading to Ph. D. degree in various disciplines, a five-year integrated programmes leading to BE (Hons), Master of Management Studies, MA/MSc (Hons), a four-year BPharm (Hons) course and two-year Master's Programmes leading to ME, MSc (Tech), MPharm are also conducted.

The institute has faculty openings in the following ranks : Professor (Rs 1500-2500); Associate Professor (Rs. 1500-2000); Assistant Professor (Rs. 1200-1900) Lecturer (Rs. 700-1600) and Assistant Lecturer (Rs. 700-1100). In addition the institute also accommodates persons with desirable competence and professional experience even though they had no academic involvements. The visiting adjunct faculty schemes of the institute can work out tailormade proposals for those who may not be planning to permanently shift to BITS. Further, particularly in inter-disciplinary areas, persons who would like to move from the traditional disciplines will find rewarding returns. Other openings at lower levels like technical Assistantships and Research Associateships are also available.

While all newly appointed professors are required to go to the institute's practice stations at different locations across the country as any other faculty member, the Institute will welcome applications from those who are residing at these locations and may not immediately be able to make the normal residence at Pilani. The institute expects to establish year-round practice school stations in the cities of Bombay, Calcutta, Chandigarh, Delhi, Hyderabad, Jammu, Lucknow, Nagda and Renukoot.

The institute wishes to add new manpower at various levels to assume some unusual challenges and responsibilities. Over the past several years the institute had implemented many educational innovations touching upon restructuring of education to imbibe multidisciplinary theme, examination reforms, building linkages with the world outside the campus through the practice schools and directing aggregate research efforts towards areas of national relevance. While it is difficult to precisely define the next needs of the institute in broad terms, the institute needs more people to bring an attitude of mind, quality of scholarship and richness of experience to give further shape to the Institute's task of evaluation, development of courses prompted both by the impulses from the outside world as well as the needs of restructured programme, the commitment to time-bound and mission-oriented research of national relevance whether basic or applied and unusual adapatability to bring the highest competence in the solution of the most ordinary problems of organisation management and student involvement in all aspects of the Institute's life.

Wherever necessary, suitable details can be worked out for unusual avenues on mutual consent. Those who are interested in these openings may write to the Registrar for the booklet which provides detailed information.

UNIVERSITY NEWS

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its Readers

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Happy New Year

Problems of Engineering Education

Engineering education in our country began with the starting of engineering colleges at Madras, Roorkee, Calcutta and Poona. In 1947 there were 38 engineering colleges (with an admission capacity of 2940) and 53 polytechnics (3670). Today we have 136 engineering colleges (25,000) and 277 polytechnics (50,000). There are about 65 institutions offering masters degree courses in a wide range of subjects in engineering and technology.

In the course of this expansion, many institutions were allowed to admit more students and some were permitted to start many new courses with very limited additional staff and financial grants. These were done more often than not on prestige considerations and/or under popular pressure. These are the causes of the present unemployment of engineers.

In the following paragraphs, some of the problems of the present system of technical education and the possible remedial measures are discussed.

Many of the industries appear to think that the graduate engineers of today cannot handle ably the working, development and research activities of an organisation. They often say openly that the graduate engineers rarely have the talent resources, inclination to analytical and creative thinking or what is more important, confidence in doing a job all alone. They feel that whatever an engineer, soon after graduation, can do in industry could be done much better by a person with several years of experience, with perhaps no formal engineering qualification. On account of this, industry prefers a non-engineer who could be hired on a fraction of the pay of an engineer.

Our industries put the blame solely on the institutions and are disinclined to accept their responsibilities and to extend their co-operation in upgrading engineering education. The boards of studies of some universities contain some industrialists as members but this is more an ornamental association than a positive approach.

On the other hand, engineering institutions have become places of instruction with chalk, black board and talk. The majority of the teachers are without sufficient or no industrial experience. So, they are not aware of the development and needs of industry and are not inclined to undertake investigation of practical problems. They are also not able to acquaint the students with these industrial problems. It is very essential therefore, that teachers are made or allowed to visit industries as frequently as possible and to acquire practical experience by actual working in industries.

To develop technical education and research (basic as well as applied) effectively, it is desirable to establish a technical university in each State and affiliate to it all engineering colleges in that State. Each institution in the university should be made to concentrate on a particular field so that after some time it becomes an authority in that field.

To conserve and channelise our limited resources it is necessary to devide our country into a number of technical regions and make every region offer specialised courses only in a number of subjects. The manpower specialised in a subject which divided and scattered at different places, should be pooled and allocated to the region specialising in that subject.

The computer is an essential unit for doing substantial research work on theoretical aspects by the staff and students of an institutions. But, at present some of the computer centres attached to the institutions advertise the availability of their computer time for outside work. This only indicates that these computers are not being used fully by the institutions. It also stresses the fact that purchase of less costly and smaller storage capacity computer units by each institution should be discouraged. Instead each technical region must be provided with fast computers and maximum storage capacity and with all peripheral equipment to cater to the needs of all the institutions in that region. This will make for the utmost utilisation of the computer and the available financial resources.

Short and long term exchanges of faculty members between engineering institution, including the Indian Institutes of Technology, should be encouraged. This will enable the staff to know about the equipment and other facilities available and the research activities in other insitutions and help them to build up their own institutions. Financial incentives should be incorporated in these bilateral exchange programmes.

Industrial and engineering societies must realise their responsibility and actively support engineering education so that adequate high calibre staff will be inclined to work in engineering institutions.

The pay scales of the teaching and non-teaching staff in engineering institutions should be comparable with those in the Indian Institutes of Technology and in industries. Only this will make experienced and qualified people seek employment in engineering institutions.

Under-graduate and post-graduate courses should have a common teaching staff and every qualified staff member (including the head of the institution) should participate in teaching both the sections.

The teacher who teaches subjects of practical importance such as automobile engineering, marine engineering and power plant engineering must have practical knowledge and must possess the knowledge of the state of the technology of the industry concerned. Only this will make the teacher go deeper into the practical aspects while teaching. The student when he finds a change in the approach to teaching will himself want to learn the subject with a practical bias from his learning the subject just for passing the examination. So the faculty members should be given sabbatical leave to enable them to work or undergo training in industry as part of their prescribed duty.

(*Courtesy* : *The Sunday Standard*)

Science & Spirituality

(Contd. from page 3)

a modern University degree, like a passport, should be valid only for a period of five years. Fourthly, this tremendous rate of growth of scientific knowledge and technology has led, in its turn, to almost kaleidoscopic changes in modern societies which have become science-based. In ancient and mediaeval times, the rate of social change was so slow that the knowledge and skills which a person acquired gave good service to him throughout his life and were good enough even for one or more later generations. But today, changes in life—styles are so rapid that every individual has to keep learning all his life and that he may have to acquire new knowledge and skills or even change his vocation every few years. The modern age of science and technology has, like many other things, brought in great advantages and also created immense problems.

The modern world is also highly competitive; and unless a nation is continually alert, it will, in all probability, be driven to the wall. The rich, industrially advanced and powerful nations of the world owe their position entirely to their command over science and technology, and the traditionally agricultural, poor and weak nations of the world are so, simply because they lack this command over science and technology. If we in India want to survive in this struggle, desire to modernise ourselves, and wish to solve our problems of poverty, hunger, ill-health and ignorance, there is no alternative for us except to develop science and technology in a very big way. This was realised by our national leaders very early. For instance, one of the earliest institutions of national education set up in our country, which has now become the Jadavpur University, was a technical institution. The need to develop scientific and technical education was greatly emphasized by our national leaders and most of all by Pandit Jawaharlal Nehru who gave a tremendous fillip to science education, formulated the Science Policy Resolution, and created a huge infrastructure for science and technology in the independent India.

It is because of these efforts that we have been able to modernize our agriculture to a great extent, to create a huge industrial structure in both public and private sectors, and to build up a large reservoir of trained high-level scientific man-power, in numbers ranking third in the world. This has given us the capacity to modernise and develop our country, and to assist similar programmes in several other developing countries of the world. While we can rightly feel proud of these achievements, there is hardly any room for complacency and we have still a long, long way to go. Science education must become an integral part of all education. As the Education Commission recommended, the teaching of science should be compulsory till the end of class X Ultimately, some study of science should become a part of all courses in humanities and social sciences beyond class X, just as some study of humanities and social sciences has to be included in all science and technology courses as well. Science must also enter out-of-school and adult education through non-formal channels. The quality of science teaching has also to be raised considerably so as to achieve its proper objectives and purposes, viz. to promote an ever-deepening understanding of basic principles, to develop problem-solving and analytical skills and the ability to apply them to the problems of material environment and social living. Two programmes deserve special emphasis in this regard: (1) the preparation of competent and dedicated science teachers and (2) the production of modern, well-designed, effective and cheap teaching and learning materials prepared from locally available assets.

I would like to highlight three important points in this regard. The first is the need to create a 'scientific temper' in the society as a whole in order to raise it out of its traditional and feudal attitudes or as Gokhale put it, "to liberate our people from the thraldom of old-world ideas". This scientific temper, let me point out, "strengthens the commitment of man to free enquiry and to the quest of truth as his highest duty and obligation. It loosens the bonds of dogmatism and acts as a powerful dispeller of fear and superstition, fatalism and passive resignation. By its emphasis on reason and free enquiry, it even helps to lessen ideological tensions which often arise because of adherence to dogma and fanaticism".

My second point is that the greatest need today is to spread science and technology to rural India where 80 per cent of our people live and which really is 'the India.' Our urban areas have advanced mainly because of our investment of science and technology in them. They consume the largest quantity of energy per head of population. They have the best communication systems, excellent medical and educational services, large availability of electric supply, safe drinking water and drainage facilities, modern forms of recreation and so on. As compared with them, our investment of science and techology in the rural area has been extremely meagre. It is this failure which has widened the gulf between the urban and rural area so that people are being uprooted by thousands and millions in villages and thrown into the cities where they create immense problems for all concerned. Gandhiji did not want the cities to live off the villages and maintained that if the village perishes, India perishes too."

Let us also not forget that the difference in lifestyles between our modernized cities and the stagnant and traditional villages is far wider now than that which existed between towns and villages, say, at the end of the eighteenth century. It is this neglect of villages which is the main cause of our poverty and backwardness and *unless it is replaced by a new* policy which places the highest emphasis on rural development, no plans of modernization and development are likely to succeed. "Villages" said Rabindra Nath Tagore, "are like women. In their keeping lies the cradle of the race."

Our Prime Minister Shrimati Indira Gandhi gave a new thrust, while inaugurating the Indian Science Congress at Waltair by laying stress on the fact that "the challenge before leaders of science and the moulders of national and international policies is to direct the known and proven capacities of science towards removal of hunger, want and the diseases of privation" This timely call prompted me to take the unorthodox step of presenting, along with the traditional budget documents, a paper outlining a new stragegy for Integrated Rural Development. The challenge facing us is one of harnessing the potential of science and technology for the optimum use of all natural assets—human, animal and physical—for banishing poverty from our midst. What I highlighted in this paper was the need for a substantial and fundamental departure from existing approaches to the problem of merely committing some more resources to existing programmes or adding some more new programmes. The new strategy involves a systematic, scientific and integrated view of the exploitation of all our national resources, and as a part of the process, visualises a situation where every person would be enabled to engage him-self in a productive and socially useful occupation, thereby deriving the capacity to earn an income which would enable him to meet at least his basic minimum needs This objective is today within our grasp, thanks to the rapid advances made in science and technology. I am happy to say that this new programme has been taken up in twenty selected districts in the country during this year and I have no doubt in my mind that by doing so we have started a peaceful revolution which will change the face of rural India in the foreseeable future.

My third and the last point has two aspects: one negative and the other positive. The negative *point is that we should avoid the dangers which* are now becoming increasingly apparent, and which are inherent in the wrong pursuit of science and technology. Science and technology could produce material plenty which gave immediate and obvious relief to long suffering humanity—a relief which it had not received by the earlier pursuit of religion for several centuries. Consequently, an impression arose that religion is not important, that moral and ethical values could be relegated to a secondary position, that the pursuit of material satisfaction (or *sheer consumerism) was* all that mattered, and that we were entitled to do all that was possible or that there was no essential difference between 'could' and 'should'. This led to a reckless use of science and technology, especially by two major vested interests: the profitoriented capitalist trader or industrialist and the power-oriented soldier. The consequences of this double domination over the use of science and technology is now well-known: *there is a tremendous waste everywhere and all* available natural resources are being depleted at a tremendous rate. The depletion of non-renewable scarce resources especially, portends a sheer disaster to the future of man. The armament race that has now become almost global and the stock-piling of nuclear weapons has created a very explosive situation where a small error or madness may generate a holocaust which may totally destroy all life on earth. Moreover, the very pursuit of endless consumerism has generated immense tensions and created several *unforeseen social problems (including an inordinate* growth of crime) so that man is probably more unhappy today than at any time in the so called barbaric past. This feeling which was so prophetically expressed long ago by Mahatma Gandhi is now spreading among serious thinkers all over the world: the writings of Ivan Illich are, for instance, a bitter commentary on this misuse of science and its evil consequences.

My positive point is that we should avoid these pitfalls by while accepting science and technology from the West, disassociating them from blind consumerism and mercantilism on the one hand and power-oriented imperialism or colonialism on the other. This view was strongly advocated by Mahatma Gandhi who repeatedly stressed that the moral and ethical order was supreme, that we must distinguish between 'could' and 'should', and that even science and technology must be made subordinate to moral and ethical principles. The world is also increasingly realizing that if religion alone was unable to solve the problems of the world till the end of the eighteenth century, science and technology of the last two hundred years have also been equally unable to solve these problems and have probably made them more complex and difficult. The solution obviously lies in combining science with religion or in creating an age of 'science and spirituality' as Vinobaji has suggested. It is here that our rich cultural tradition can help us, not only to solve our problems, but also to give a lead to the world as a whole. As Pandit Jawaharlal Nehru observed :

> "Can we combine the progress of science and technology with this progress of the mind and spirit also ? We cannot be untrue to science because that represents the basic fact of life today. Still less can we be untrue to those essential principles for which India has stood in the past throughout the ages. Let us then pursue our path to industrial progress with all *our strength and vigour and at the same time,* remember that material riches without toleration and compassion and wisdom may well turn to dust and ashes".

Research in Affiliated Colleges

K.R. Rajagopalan
G.R. Venkataraman

What is the position of research in the large number of affiliated colleges—whose main business (at least till very recently) was to teach to the undergraduate and post-graduate students? How many of the teachers have actually acquired research qualifications? *What according to the teachers themselves*, are the reasons for their not taking up research ? To enquire into these and other aspects of the problem, a mailmethod sampling enquiry was conducted recently in the city colleges of Madras. Some of the findings of that survey are reported here.

There are nearly 2,000 teachers working in about a score of colleges in and around the city; only arts and science colleges have been considered. About a sixth of them were statistically sampled, giving equal weightage to the various subjects; but only 161 teachers responded with their answers The findings pertain to these respondents only—but can be taken to be fairly representative of the general situation obtaining in colleges.

It is found that nearly eighty-seven per cent of the teachers do not possess any research degree. There are only ten individuals with a doctorate degree; eleven have the lower M Litt degree. A little less than half of the teachers are teaching post-graduate classes.

As to the reason for their not taking up research, the most common reasons appear to be the following: (i) heavy work-load, leaving little or no time for research. It is feared that the introduction of the semester system will eat into the time of the teachers; (ii) teaching work has not necessitated their acquiring a research degree. It is granted that the teacher has to update his knowledge and be conversant with the later developments in his subject. Even without working for a degree, this can be done and has been done by many of the teachers belonging today to the age group 40-50; (iii) non-availability of supervisors and guidance is another important factor. To cite an instance, in a particular subject taught at the PG level in four colleges and at the UG level in three colleges (apart from the University of Madras) there is only one acceptable 'guide' for all the staff members in these five places. The maximum number of research scholars that one guide can have appears to be six and there are not less than 45 teachers who have to acquire the research degree; by a modest estimate, it would take 21 years for these persons to get registered, work for their projects and obtain the degree! (iv) non-availability of finance and the out-moded research regulations of the university are also mentioned frequently. In recent times, it is reported that the regulations are being modified.

Considering the responses age-wise, the younger teachers (21-30 years) who have not perhaps decided to settle down in the teaching line alone, have cited lack of supervisor and the heavy work load as important reasons for not taking up research work. Persons in the next age group of 31-40, (one can be sure that they would have studied the research regulations well) *give a high place to the stringent rules of the* university. For persons in the last age-group of "over forties", the main reason appears to be—"the teaching work has not necessitated any research work". These are persons who have already been teaching for twenty years or more and who feel (perhaps rightly) that teaching is a full time job.

The teachers were also asked to indicate whether *they are currently involved in research* of some kind-either for a degree or otherwise. A little more than a fourth of them have indicated that they are engaged in research. Out of them arts teachers outnumber science teachers. Only a few of them are women.

Where do these persons get the money from? It is revealing to note that more than three-fourths of them are financing the projects themselves! Only ten of them are getting assistance from their colleges, or the university or the UGC or other research organisations. This definitely shows that the contributions of all these agencies towards research in affiliated colleges is very meagre indeed.

The subjects "most favoured" for research are the following : Tamil, English, History, Chemistry and Natural Science. At least four persons are engaged in research activities in these subjects Chemistry and English are 'hot" favourities with six candidates each, while Natural Science follows very closely with five.

What about research papers and publications? Six professors (five PGs and one UG) have indicated that they have produced, in all 45 papers. Seventeen Assistant Professors have totally produced sixtynine papers. Many of them have indicated that they have unpublished papers also (five in all). Thus, the average number of research papers per teacher, published or unpublished, works out to 5.1. Too much reliance cannot be placed on this figure as this is only an average, but this could be borne in mind when one wants to evaluate the work of persons who do not have a research degree but have been publishing papers on their own.

Some respondents are quite emphatic that teaching is *entirely* different from research and that not all teachers are fit to do research. On the other hand, they point out that a good researcher may be a poor teacher too.

(*Courtesy : The Hindu*)

CAMPUS NEWS

UP Vice-Chancellors meet in Lucknow

The Vice-Chancellors of the universities of Uttar Pradesh had a conference with their Chancellor, Dr. M.Chenna Reddy, in Lucknow.

The conference endorsed the recommendations of the recently held conference of managers and principals of degree colleges called for the remapping of areas and jurisdiction of various universities as the load of work on them was quite unbalanced.

For effecting improvement in the present examination system the conference discussed examination pattern prevalent in Pantnagar and the recommendations of the University Grants Commission as well as the recommendations made at the Lucknow Seminar held during September. The conference however felt that all the paper-setters should be asked to send model answers and detailed scheme of marking along with their question papers The conference also recommended that at least from 197 examinations, 20% of the questions should be of the short answer type and the precentage of these questions should be increased progressively The decision of delinking of specialised results from the overall results was endorsed so that the students failing in one subject need pass in that subject only without appearing in the entire examination. It also recommended allowing re-valuation of answer books by a panel of external examiners and for this universities should be allowed to set up their own procedures. The conference suggested that a controller of examinations directly responsible to the Vice-Chancellor and the Executive Council should be appointed for conducting university examinations. He should be assisted by one deputy controller and adequate number of assistant controllers.

It was agreed that universities should follow the same academic calendar according to which all the admissions should be completed before July. 15, the date on which the university will open and teaching should be started. The university should close for the vacation on May 22, each year. At least two hundred teaching days must be obrseved for every university and for which some adjustment in the period of conducting examinations and vacation should be made. Convocation weeks for every university were also decided It was agreed that the lecturers in the degree colleges and universities should at least teach for 20 hours per week and remain available throughout the working days in the campus. They should also submit the synopsis of their class lectures.

The Vice-Chancellors were of the opinion that upto the degree level all the universities should have one uniform syllabus. For this the universities have been asked to hold a meeting of the Board of Studies of different subjects and evolve a common syllabus for each subject. It was also decided to bring uniformity in academic standards and for this all the universities should determine the first division on sixty per cent, second on fortyeight per cent and the third on thirty per cent marks. This should come into effect in the year 1977.

The Vice-Chancellors also agreed that teachers for the degree colleges and the universities should be recruited through a centralised agency which should be set up on the pattern of the Public Service Commission. The posts of the teachers and principals should be made transferable. Rules for their premature retirement from service for misconduct, poor teaching, bad results, neglect of work and being proved a deadwood should also be worked out. The conference approved that job oriented short term courses should be taken up by every university. The starting of MPhil &M.Litt courses from July next was also recommended. The students who fail to get through in two consecutive attempts should not be readmitted.

Plans for Dantiwada Campus of GAU

A significant step towards the development of the Dantiwada campus of Gujarat Agricultural University has been taken The foundation of a Rs. 110 lakh centre for research in arid and semi-arid zone problems was laid by Mr. K K. Vishwanathan, Governor of the State. The centre would investigate the various problems concerning the various climatic conditions prevailing in the State. Many areas of north Gujarat, Kutch and part of Saurashtra suffer because of adverse soil and weather conditions. The conditions in which a small farmer entirely dependent on monsoon carries on his farming would be stimulated at the centre. The division on basic resources survey will try to piece together a comprehensive picture of land, climate, water, vegetation, animal, human and land resources. It will identify areas of groundnut availability, predict water yield for different types of catchments and undertake characterisation of soil conditions of waste and barren lands with a view to evolving methods for their development. The division will locate plants useful for industries, conduct hydrological studies in water-sheds and streamflows for assessment and augmentation of surface water supply.

Another division of the centre will concentrate on animal studies and range management. It will study physiological correlations for high production in animal breeds and decide suitable breeds for the arid and semi-arid zones. The division will also improve grasses, legumes, pasture re-seeding and other range management problems. It will develop methods for the control of birds, rodents and diseases. The third division of the centre will work after dry land management problems covering various disciplines like plant breeding, ecology, agronomy, plant physiology, soil sciences, meteorology, forestry and farm engineering.

A novel feature of the campus will be a 200-acre student farm from which plots of five to ten acres will be leased out at nominal charges to fresh farm graduates *who want to gain experience* before settling down in life. They will be supplied the inputs at the usual price as well as the technical guidance and will be allowed to keep implements from the next Kharif season. At Dantiwada a rural engineering faculty is also planned to develop technologies relevant to villages. Institute to train teachers working in agricultural Colleges and schools would also be set up.

The Board of Management of the Gujarat Agricultural University has provided a sum of Rs. 11 lakhs for the special programmes designed for the development of tribal areas. The University would undertake an all-India coordinated research project in poultry development at a cost of Rs. seven lakhs during the fifth plan period. It will also enter into a collaborative project with the Indian Dairy Development Corporation for the cross breeding of exotic animals with the Kankrej and Gir animals. The overall annual development plan of the university for 1977-78 would be costing about Rs. 210 lakhs.

UGC for medical education

Dr. P. N. Chhuttani, Director of the Postgraduate Institute of Medical Education and Research, Chandigarh, in his keynote address to the Commonwealth Scientific meeting, pleaded for setting up of a University Grants Commission type of body for medical education. Such a body was recommended by the Education Commission in 1964-65 and was also reiterated by the Srivastava Committee. He said that the committee had emphasised that medical education reform not being a 'one-shot affair' needed continuous reaction between the output of the system and its management, between the Centre and the State and between universities and institutions of medical education and had underscored the need for a suitable structure charged with the responsibility of reforming medical education in all its aspects.

Dr. Chhuttani said that everyone concerned with medical education seemed dissatisfied with the existing educational system and most of them believed that the present system did not prepare the right kind of doctors needed for the national programme of health services. The entire programme of medical education requires restructuring. He said that many educational conferences in the country as also at the international level had set out the objectives of undergraduate medical education in detail. But the reforms of undergraduate medical education could not be divorced from general education. The study of general education in the country was more deplorable than medical education. A number of eminent educationists had of late been addressing themselves on this topic as well.

As regards the present status of pre-medical education, Dr. Chhuttani said that he and many others believed that it did not prepare the students for entry into medical colleges. Two years of continuous study in science relevant to the pre-medical period after ten years of schooling as envisaged in the 10+2 system might improve the situation if sufficient energy was devoted and adequate funds invested in equipping the schools.

Dr. Chhuttani suggested that enough provision should be made for continuing education of the doctors after leaving the college having regard to the fact that 13,000 doctors coming out of the 110 medical colleges in the country became 'outdated' in less than five years.

As regards postgraduate medical education and research, Dr. Chhuttani said that the medical colleges in the country vied with one another to start registration for postgraduate training without providing the requisite facilities. There was again no lack of excellent suggestions and committee reports in closing this hiatus provided we face the problem and recognise that we have no organisational methodology of implementing the needed reforms.

Medical education for concurrent list

Presiding over the Jaipur session of the Medical Council of India, Dr. B. N. Sinha, urged the Central Govenment to put health and medical education under the concurrent list of subjects to bring about uniformity in matters of admissions, appointment of teachers, syllabus and improvement of teaching and research. He said that the Council is opposed to any reservations in the matter of admission for any class or section of people. Medical college admissions must be strictly on the basis of merit. If there was a desire to help the weaker sections, special coaching and training and financial assistance should be arranged for them in advance. In professional education and technical education there should be no reservation. Dr. Sinha expressed his concern over the high rate of failure in examinations. He pleaded for a proper rational system of valuation of examinations and the teachers performance in classes. He welcomed the 10+2 system of education and hoped that this pattern would bring some form of uniformity in standards.

The Medical Council would be announcing some major reforms in the medical education system and pattern in about three months time. It has recommended to all State Governments and medical colleges to involve the medical graduates in community services by posting them in public health centres located in rural areas

Pitamber Fellowship for environmental students

The Central Government has instituted 'Pitamber Pant Fellowship Award' to commemorate the name of Pitamber Pant in recognition of his outstanding services in the field of "environmental planning." The fellowship is intented to promote and encourage gifted and talented individuals to continue their intellactual and academic pursuits in the environmental science. The fellowship is available for a period of two years and is extendable by one more year in exceptional cases. The awardee will be free to pursue his work at any institution and organisation within the country which provides the necessary facilities. The fellowship award carries a payment of Rs. 2,500 per month in additon to an annual grant of Rs. 5,000 for meeting expenses on secretarial and technical assistance, travel and other contingencies. The fellow would be entitled to engage the services of a research assistant, field investigator on a consolidated salary not exceeding Rs. 800 per month for the duration of the award.

Institution of higher education, national laboratories and other research and development institutions and organisations interested in environmental study and individuals have been requested to send the nomination for the award to the Secretary, Department of Science and Technology. The term environmental science for this purpose would be interpreted in the broadest sense and would include all operative pursuits and projects aimed at providing solutions for a better understanding of important environmental issues including environmental preservation and protection. Preference would be given to persons who have displayed high professional competence and ability and aptitude for innovative work.

I.I.T. consultancy becomes popular

The Indian Institute of Technology, Bombay, has completed 2000 industrial consultancy projects in mechanical, chemical, electrical, civil, metallurgy and aeronautical engineering since the scheme was started in 1965. It has resulted in large saving in foreign exchange and generation of Indian knowhow.

The earnings of the institute increased by 200% since the establishment of the industrial and research consultancy centre in 1975-76 and in 1976-77. It registered a further rise of 25%.

Prof. A. K. De, Director of the Institute, says that the main purpose of the centre is to encourage collaboration projects between the institute, industries, the national laboratories and other research and development organisations. The consultative advice has been provided for the design and analysis of tall structures, television tower and long-span bridges. An economical nuclear weighing bridge has been developed and a number of problems in the field of fluids and machine design referred to the institute by well-known companies has been solved. A major portion of research and development work of the institute is done through research projects sponsored by well known agencies like the Council of Scientific and Industrial Research, Science and Engineering Research Council and Department of Atomic Energy.

Parallel courses for IITs

All the five Indian Institutes of Technology will organise five-year and four-year courses from the next academic session. This decision has been taken in view of the introduction of 10+2 pattern of education. The Institutes will hold separate but Joint All-India Entrance Examination for admission to these two courses. The first test for those with higher secondary or higher qualifications will be held in May every year leading to the five-year course.

The second test will be held in July and only students of 10+2 schooling or with higher qualifications will be eligible to take this examination. This will be for the four-year course. These two parallel courses will be run till 1982 when the five-year course will be stopped.

The institutes are making special efforts to induce scheduled caste and scheduled tribes students and those belonging to the low income groups for enrolment. Special merit-cum-new scholarship to about 25% of the total number of students admitted to the courses would be made available to students coming from families of low income groups. Special concessions would also be given to scheduled castes and scheduled tribes students.

Ecological Institute at Simla

The Himachal Pradesh University would soon set up an advanced centre for the study of ecology of temperate regions. The centre will aim at ensuring a complete understanding of the ecology of the region with a view to obtaining maximum production from the natural and artificial resources of the State. The State has a vast amount of untapped and tapped natural resources like minerals oils, plant and animal wealth. The centre will also help research scholars working on the evolution of man. Parts of the State show typically dry plain conditions and high mountaneous environments This facilitates a study of man and his adaptation in varying altitudinal environments.

The State Government is considering the establishment of a fossil park. The establishment of the ecological centre will bridge the gap and will also study those factors which constitute the natural environment which has acted as a casual factor in biological and social evolution.

UAS organises soil biology laboratory

Dr. H. R. Arakeri, Vice-Chancellor of University of Agricultural Sciences, Bangalore, while inaugurating the All-India Symposium on Soil Biology and Ecology, informed that the university will set up a well-equipped soil biology laboratory with the assistance of the United Nations Development Programme (UNDP). He said that the study of soil biology had not received due importance in the counrty. He added that the general universities should take up basic research work in the study of soil and ecology in a larger measure. The work of some microbilogists had indicated that fertilisers could be done away within some cases and in others there could be substitution for fertilisers. He said that the pest aspect of biology with reference to agriculture had been studied but their possible beneficial effects have not been fully explored. He asked the soil scientists and biologists to study in detail the effects of the use of pesticides on the soil as a whole and also study the problems which were created on the application of the pesticides. The whole accent should be on pest management rather than on pesticides.

He called for greater collaboration and coordination among the science workers so that repetition of work was avoided and the coordination and collaboration did not become the domination by one group or the other.

CSIR clinics

The Council of Scientific and Industrial Research has set up a polytechnological clinic in its Trivandrum complex as a part of its effort to make technology available at the users door steps. The clinic will provide scientific and technical information to the industrialists, entrepreneurs and State Government departments on technological inputs required for the development of the industries especially in the medium, small and cottage sectors on modern scientific lines. It will also make a survey of the available industrial resources in the State and find out the technology necessary for their optimum utilisation.

The Trivandrum clinic is the latest of a stream of such clinics being started by the CSIR in different parts of the country. The other centre is functioning at Cochin in Kerala State. Both these complexes have taken up research and development programmes in a big way.

Awards for young scientists

Twelve outstanding scientists under thirty years of age will receive cash awards amounting to Rs. 5,000 each on the inaugural day of the Indian Science Congress session in Bhubaneswar on January 3, 1977 from the Prime Minister, Smt. Indira Gandhi.

The award instituted by the Kothari Scientific Research Institute, Calcutta in 1974, in agreement with the Indian National Science Academy, which recommends the names are aimed at giving impetus to research talents of the scientists. In the last two years 34 young scientists have received the awards. The twelve scientists selected this year are : (1) Dr. Srikumar Banerjee (Metallurgy-BARC); (2) Dr. (Mrs. Julie Banerji (Chemistry-Calcutta University);(3) Dr. A.R. Bhattacharya (Geology-Lucknow University); (4) Dr. S.G. Dani (Mathematics-TIFR, Bombay); (5) Dr. Shamim Haider (Zoology-BHU); (6) Dr. R.V. Halyburton (Geologists-Oil India); (7) Dr. (Miss) Triti Mohapatra (Mathematics—Utkal University); (8) Dr. V. M. Pawar (Entomology-Marathwada Agricultural University); (9) Dr. S S.S. V. Prasad (University of Texas); (10) Dr. Abhijit Sen (Physical Research Laboratory—Ahemdabad); (11) Mr. A. Surolia (Neurochemistry—Christian Medical College Hospital, Vellore); and (12) Dr. V.V.S. Tyagi (Botany-PAU, Ludhiana).

Andhra VCs meet in Waltair

The Vice - Chancellors of Andhra, Sri Venkateswara and Osmania Universities took important decisions at their conference held on December 9, 1976 at Andhra University campus, Waltair. The conference decided to introduce M. Phil courses for the benefit of inservice teachers immediately. Details as to the pattern, content and duration of the courses and other connected matters would be worked out by the universities and then the State Government would be approached for necessary financial assistance for providing necessary facilities.

The conference also considered the question of evolving a uniform pattern for oriental title courses in the state universities and resolved that a joint committee consisting of the Chairmen of Board of Studies in these courses of the three universities with Prof. K. S. Murty as Chairman be constituted to go into the syllabi and make appropriate recommendations.

The conference considered the proposal to reduce the duration of present engineering courses and resolved to constitute a committee of the representatives of the three universities and the Jawaharlal Nehru Technological University to examine the possibility of revising the present pattern without downgrading the standard.

Regarding the introduction of grading system in the postgraduate examinations, it was agreed that seven- point grading system as recommended by the University Grants Commission be adopted at the post-graduate level and that each university may decide its own plan of action to adopt the same.

The conference decided to recommend to the Government for revising the curriculum of intermediate courses by making study of Mathematics compulsory for biological sciences students and biological sciences for Mathematics students so as to enable the candidates to become eligible for admissions in engineering and medicine as well.

In addition to the Vice-Chancellors of the three universities, Mr. C. S. Sastri, Education Secretary and Mr. V. Ramachandran Director of Higher Education, also participated in the discussions.

UGC suggests college development councils

Prof. Satish Chandra, Chairman, University Grants Commission while addressing the National Conference of Planning Forums in New Delhi said that the Commission has taken a number of steps for the planned development of colleges. The universities had been asked to set up college development councils and also to carry out a survey of the facilities for higher education available in each district under their jurisdiction. Sri Venkateswara University has already conducted such a survey of the educational facilities available to the people and a comprehensive programme has been drawn up for further development. He hoped that other universities would also follow suit. He said that 100 districts in the country have five to ten colleges each and in the remaining districts, the number varied from one to four. Prof. Chandra felt that over 200 committees would have to be set up to help the colleges plan their development in accordance with the needs of the community. These colleges would be provided within a ceiling of Rs. five lakhs per college for improvement of undergraduate facilities. Nearly half of them have already submitted their plans and the grants have been released to many of them. In addition, postgraduate departments in six hundred colleges have been asked to submit their plans separately. He said that concerted steps in the current plan period have been taken to bring about a change in the content of education on the principles of relevance, diversification, modernisation and social justice. Efforts were also being made to re-structure degree courses suited to both rural and urban needs.

SNIPES meets at Bangalore

The 40th Board Meeting of the Society for the National Institutes of Physical Education in Sports (SNIPES) which is the apex body for sports and physical education in the country has provided Rupees three lakhs this year for extending financial assistance to non-government physical education training institutions for improving their physical education facilities. It also decided to hold an all-India Rural Sports Competitions for 1976-77 in football, volleyball and gymnastics at Kolhapur in Maharasthra from January 13 to 16, 1977.

The Board also decided to run a special three-month course for ex-international players who are willing to coach youngesters in their spare time and are available to prepare national teams on a voluntary basis. It was decided to grade all the coaches available with NIS, State Sports Councils, Universities, Services and Railways under grades 'A', 'B', 'C', and 'D' and to link the promotions of the full time coaches with their sports achievements. The value of sports medicine fellowship was raised to Rs. 400 a month. Seven such fellowships were sanctioned for the sports medicine department at the NIS Patiala during 1977.

The Board would soon conduct a study of the dietary requirements of sportsmen of various categories and also of children of the age of six onwards. For the promotion of yoga and to give it the rightful place in promotion of sports and physical education it was decided to help financially the yoga institutions involved in research work.

New academic programmes planned at Gauhati

The Gauhati University has started postgraduate studies in the department of law Postgraduate courses in business administration and library science would also be instituted from this academic session. In order to enable the non-Assamese people to learn Assamese language, the university has introduced a certificate course of proficiency. A one-year certificate course in Tamil has also been started so that the people of the region could learn the Tamil language

The Departments of Botany, Chemistry and Zoology have been recognised by the University Grants Commission for the faculty improvement programme. Selected teachers from the affiliated colleges would be encouraged to pursue the MPhil and PhD courses. The university has also introduced a pre-examination coaching classes for all-India competitive examinations. Initially a provision for admission of thirty talented students have been made.

Guru Nanak Professorships in comparative religion and philosophy would be instituted for study of the Sikh religion and literature with a view to promote better understanding and appreciation of the contributions of Guru Nanak.

The university has introduced internal assessment at the postgraduate level from the session 1976-77 and the grading system from the examinations of 1977.

Smoke density indicator fabricated

Shri Amit Kumar Roy of Jadavpur University has designed a smoke density indicator. This apparatus can be used to measure the density of the smoke emitted from the automobile exhaust and also from the chimney exhaust. The need for such an exhaust has has been felt for quite some time by the civic and police authorities to check air pollution The university would soon apply for the patent of this apparatus which has passed the laboratory test. Nearly sixty to seventy per cent of air pollution in big cities like Calcutta and Bombay may be checked through this indicator.

One crore for university staff quarters

The University Grants Commission has made a provision for Rupees one crore for building staff quarters in universities during the Fifth Plan period. The emergency services like water and power supply, health and sanitation, maintenance of telephones laboratories and computer centre, security and maintenance of university property and estate and other categories of expenditure would also be considered.

Prof. B.Ramachandra Rao, Vice-Chairman of the Commision while addressing ninth annual meeting of the Election Microscope Society at Lucknow said that provision has been made for small project-oriented research grants for teachers in colleges so that decentralised research projects may be taken at different levels.

Gujarat teachers accept the code of conduct

The Federation of Gujarat State Teachers Association has decided to accept the revised pay scales and the code of conduct formulated by the Gujarat State. The Sen Committee's recommendations were accepted in principle by the State Government in February last but the federation did not accept the revised scales and the code of conduct as some of the clauses were unacceptable to them. After a prolonged discussions with the authorities some changes were proposed by the teachers and they have now accepted the revised scales and the code of conduct.

Under the revised code of conduct, teachers will not get extra remuneration for doing examination and invigilation work for the parent university but will be entitled to the same for the work done for other universities. Teachers can take part in political activities with the condition that such activities should not in any way affect their duties. Similarly they can contest elections after informing the Vice-Chancellor. Teachers have every right to criticise college or university policy decisions but they are debarred from making allegations of personal nature. A joint consultative committee with representatives of both management and teachers will be set up soon. A judicial tribunal will also be constituted to solve the disputes between college management and teachers.

TN farm varsity to step up income of agriculturists

The Tamil Nadu Agricultural University is producing a large variety of edible mushrooms of good quality and high nutritive value. This is one of the many fields in which intensive research was being carried out by the university. The edible mushrooms were the delicacy in some of the north Indian towns.

The agricultural engineering department is working on better utilisation of waste material. The department has succeeded in evolving a method for converting forest weed into paper boards. The paper boards were also being made out of banana stems. Efforts were also made to indentify some of the eucalyptus varieties which could be planted in submarginal lands to provide a high income to the agriculturists. Prof. G. Rangaswami, the Vice-Chancellor of the university called for an integrated effort on the part of agriculture, animal husbandry, fisheries and forest departments. He suggested the rearing of fish wherever there was a pool of water In such a way at least two-three tonnes of fish could be bred in a hectare of water which could fetch a good income to the agriculturists.

Faculty improvement at Patna

The University Grants Commission has selected eight postgraduate departments of the University of Patna under the faculty improvement programme for the improvement of their standards. The objective of the programme is to raise the academic qualifications and professional competence of the teachers of colleges and to improve the standard of higher education in the State. Under the scheme teachers from affiliated colleges offering undergraduate instructions in Humanities including Social Sciences and science subjects would receive advanced training and research facilities in these departments so as to equip themselves with modern advancements in their respective fields. The departments selected under the improvement plan are Geology, Botany, Zoology, Physics, Chemistry, Mathematics, Hindi and History. The participating teachers will receive a sum of Rs. 250/- per month in addition to their salaries for a period of one to three years.

Annamalai Oceanography Centre

The University Grants Commission has provided Rs. 16.75 lakhs non recurring expenditure towards the development of extra facilities in Annamalai University The university proposes to provide additional laboratories, hostel for research scholars, museum and purchase of equipment and books and journals against this grant. The university would appoint two additional professors and three readers and other supporting technical staff for the centre of advanced study in marine biology. The centre has excellent facilities for research in oceanography. The scholars from all over the country and abroad have visited thecentre. It would soon start publishing a series of technical monographs of the research work done by its faculty.

Centralised instrumentation lab at Patna

Patna University has initiated steps to improve its science education to conduct research of high calibre to bridge the gap between the research workers in the universities and the common man in the State. The university has decided to undertake basic research projects to carry out integrated research on grass-root problems of the society. Under the new time-bound inter-faculty programme the university will select some of the most backward areas of the State and investigate the problems immediately affecting the common man. The university proposes to have a central instrumentation laboratory to locate centrally some of its costly and sophisticated equipment so that these may be freely available to the various departments requiring them. This would also ensure efficient maintenance of the costly equipment. The laboratory would also undertake designing and fabrication of equipment for the use of science departments.

Council of affiliated colleges

Osmania University Senate adopted a resolution for the constitution of the Council of the affiliated colleges as provided under the amended Act. The Council will meet at least twice a year and make recommendations regarding the academic and administrative problems of the affiliated colleges and maintenance of their standards.

The Vice-Chancellor will be the Chairman and convener of the Council. Besides, the Director of Higher Education, the Heads of Departments of the university colleges, the Principals of affiliated colleges and not more than ten representatives of affiliated colleges nominated by the State Government by rotation every two years will be its members. The university Registrar will be the ex-officio Secretary of the Council.

TNAU's new constituent unit

The Madras Veterinary College and the attached research stations have been declared as constituent unit of the Tamil Nadu Agricultural University from December, 1976. This has provided a greater academic freedom to the college and a wider scope for its activities.

The Tamil Nadu Agricultural University was formed in 1971. It was provided that the university should have institutions teaching veterinary/animal sciences, home sciences, fisheries and forests as its constituent unit. The State veterinary college was initially affiliated to Tamil Nadu Agricultural University in 1974 for academic matters but functioned more or less independently. Both the Central Government and the Indian Council of Agricultural Research had pressed the Tamil Nadu Government to make the veterinary college, a constituent unit of the university thus falling in line with the other States. With this change the agricultural university had been made eligible for full grant from the Indian Council of Agricultural Research.

Madras to review undergraduate courses

The Syndicate of Madras University has set up a thirty two member commission to review the undergraduate courses of the university in the light of the new education pattern. The commission would consist of five conveners of syndicate committees, nine members of the faculty, sixteen heads of board of studies and two representatives of the University Grants Commission.

Dr. Malcolm S. Adiseshiah, Vice-Chancellor, soon after the meeting said that the proposed implementation of the new education pattern provided an opportunity to frame undergraduate degree courses as terminal courses —a synthesis of theory and practice—since about 90% of the undergraduates did not pursue their studies further. Undergraduate courses in Madras would be framed so as to include foundation courses like study of scientific methods, science technology and development, social and economic life in India and the history of civilisation including the history of the freedom movement. This was besides the 'core-programme' consisting of knowledge of several disciplines, study of one or two disciplines in depth and applied studies and projects like the NSS and NCC. This was only a tentative outline and the Commission would study the matter in greater detail.

Indo-China centre for Tirupati

Prof Niharranjan Ray inaugurated the centre for studies on Indo-China at the Sri Venkateswara University. He said that the use of such terms as 'Greater India', 'Indian Asia' and 'Indian Colonies' is no longer valid. He traced the emergence of indigenous cultures and transformation of the Indian elements into creative forces in the course of their cultural contacts of neighbouring countries and gave a historical treatment of the early trade relations between India and countries of this reign. He said that a meaningful study of the history and the institutions of the region should assign a proper place to the historical forces that came into play at different periods of history as also to the role of China, past and present, in the region without which the study of South-East Asian history and institutions would be incomplete. Prof. K.S. Murty, Vice-Chancellor reiterated the relevance and objectives of area studies in Indian Universities.

Wadiyar Chair

The Karnataka Government has released a special grant of Rs. 2.5 lakhs to the Mysore University as a matching grant for instituting a chair in the name of late Sri Krishnarajendra Wadiyar for humanities, arts, literature, fine arts and music. The university has decided to contribute Rs. 2.5 lakhs from its golden jubilee foundation for the creation of the chair. The total amount of Rs. five lakhs will be kept as time deposit in a bank and the interest on the deposit will be utilised for this purpose.

The late Sri Krishnarajendra Wadiyar was the founder and the first Chancellor of Mysore University. The university has also instituted a similar chair to promote engineering education in the name af Shri M. Visvesvaraya.

(Contd. from page 26)

6. Lecturer in Mathematics (Temporary). ZH Engineering College. Scale Rs. 700-40-1100-50-1600 plus allowances.

Qualifications:

Consistently good academic record with first or high scond class (B+) Master's degree in Mathematics or an equivalent degree of a foreign University.

Desirable: A doctor's degree or published work of an equally high standard Teaching experience of degree/postgraduate classes.

Provided that if a teacher appointed as Lecturer is not a Ph.D. at the time of the appointment, it would be obligatory that he finishes his Ph. D. within 5 years of his appointment or gives evidence of equivalent research work. Further if he does not fulfil the above requirements within the period of five years of his appointment, his increment will be stopped till such time as he fulfils these requirements. (For the posts of Lecturers only).

7. Lecturer in Munaful Aza (Physiology) A. K. Tibbiya College. Scale Rs. 700-40-1100-50-1600 plus allowances.

Qualifications:

BUTS/BUMS/BUMMS or its equivalent recognised qualification. About three years teaching experience. Knowledge of Urdu, English.

Desirable: Published work.

Note: Those who have already applied need not apply again.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) by sending self-addressed envelope 23 x 10 cms. Last date for receipt of applications is **18th January, 1977.** Incomplete applications and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their TA equal to one single second class railway fare only.

Jamalur Rahman
REGISTRAR

SOUTH GUJARAT UNIVERSITY

Applications in the prescribed forms (in eight copies) are invited for the following teaching posts in the Post-Graduate Department of the University.

Name of the Department	No. of Posts
1. Public Administration	One Reader (To be qualified in Organisational Theory & Techniques of Administrative Improvements)
2. Chemistry	One Professor One Reader (Applicants to be qualified in Physical Organic Inorganic Chemistry with deep research interest in Dye Stuff Chemistry and of Drugs)
3. Interdisciplinary in Social Sciences	One Professor (Specialist in Research Methodology and qualified in Economics OR Sociology)
4. Statistics	One Professor One Reader One Lecturer
5. English	One Professor (Must have applied Teaching of foreign Language)
6. Bio-Sciences	One Professor One Reader Three Lecturers (Professor and Reader to be qualified in Marine Biology/Algology/Fishery/Morphology/Ecology).
7 Sociology	One Lecturer
8. Business and Industrial Management	Two Professors One Reader Three Teaching/Research Associates/Case Analysts in the scale of Lecturer. (Professor--Reader are required with specialisation in following areas :— (1) Economics with Orientation in Management Studies and Quantitative Analysis (2) Marketing Management (3) Human Relations in Management Studies

The Pay Scales are as under :—

1.	Professor	Rs.	1500-60-1800-100-2000-125/2-2500.
2.	Reader	Rs.	1200-50-1300-60-1600--Assessment-60-1900.
3.	Lecturer	Rs.	700-40-1100-50-1300-Assessment--50-1600

In addition to pay the teachers of the University Departments are entitled to draw dearness allowance, house rent allowance and other benefits like Contributory Provident Fund and Gratuity as may be decided from time to time.

Information about the qualifications prescribed for each post and forms prescribed for each post can be had from the undersigned on payment of Rs 7/- in Cash or by Postal Order and with self-addressed envelope of 23 Cm × 13 Cm size duly stamped with Re. 0-50 Paise. The last date for receipt of applications is 31-1-1977.

G.A. Desai
REGISTRAR

Surat

THE UNIVERSITY OF BURDWAN WEST BENGAL

Advertisement Dated 3rd December, '76 No. 22

Applications in prescribed form are invited for the following posts on approved pay scales viz

Professor—Rs. 1500-60-1800-100-2000-125/2-2500/-;
Reader —Rs. 1200-50-1300-60-1900/-;
Lecturer —Rs. 700-40-1100-50-1600/-

with admissible allowances and Contributory Provident Fund benefits.

A) Department of English : Professor-two.

B) Department of Commerce :
   i) Professor—One;
   ii) Reader—One;
   iii) Lecturer—Two.

C) Department of Botany : Professor—One.

D) Department of Philosophy : Lecturer—One.

One post under (A) is permanent and person appointed will be on probation for one year. Other post under (A) is lien bound and appointment will be on temporary basis till 17.9.77 for the present.

Post under (B) (i) is lien bound and appointment will be on temporary basis till 16.2.79 for the present. Posts under (B) (ii) and (B) (iii) are permanent and persons appointed will be on probation for one year.

Post under (C) is lien bound and appointment will be on temporary basis till 14.9.77 for the present.

Post under (D) is lien bound but person appointed is likely to be confirmed after the post becomes lien free not earlier than 2.8.77.

Minimum Qualifications : As prescribed by U.G.C.

Specialization required :

For permanent post under (A)—English language teaching with strong background in English linguistics linguistics related to ELT with good qualification in ELT. For lien bound post under (A)—any branch of English literature.

For post under (B) (i)—any branch of the subject. For post under (B) (ii) and one post under (B) (iii) Post-graduate qualification in Management from any recognised University or Institute of Management with specialization in Organisational Behaviour Industrial Psychology/Labour and Industrial relations Man Power Planning and Management of Human Resources Labour Laws Labour Economics. For the other post under (B) (iii)—Accounting and Financial Control, Quantitative Methods Organisational Behaviour.

For post under (D)—Symbolic logic.

Additional requirements:

For Professorship—(i) at least ten years' teaching experience in post-graduate class;
(ii) Competence to plan and supervise research project;
(iii) publication of sufficient merit.

For Readership—(i) at least five years' teaching experience in post-graduate class;
(ii) ability to supervise research work;
(iii) publication of sufficient merit.

For application form and other particulars, please write to the undersigned with a self addressed and stamped (40p) envelope (10" × 5").

Last date of receiving applications with requisite fee Rs. 5/- (payable either in cash at the University Cash Counter or by crossed I.P.O. drawn in favour of Finance Officer of the University) is **12.1.77.**

A.K. Banerji
REGISTRAR

UNIVERSITY OF SAUGAR

Advertisement No. R. 3/76

Applications in the prescribed form, obtainable from the under-signed on requisition accompanied by a self-addressed envelope and a postal order of Rs. 5/- for each post are invited on or before **10th January, 1977** for the following posts :—

DEPARTMENT OF HINDI

(i) One post of Professor (Permanent) under Dr Makhanlal Chaturvedi Chair Scale Rs. 1100-50-1300-60-1600 with P.F. & D.A. benefits as per University rules.

Qualifications :— (i) A first or second class Master's Degree of an Indian University or an equivalent qualification of a Foreign University in the subject concerned (ii) Either a degree of the Doctorate standard or published work of high standard, (iii) Not less than 10 years experience of Post-graduate teaching and experience of successfully guiding research.

Desirable : High academic attainments with wide recognition for scholarship and original contribution to the subject.

Qualifications may be relaxed in case of a candidate of exceptional merit.

DEPARTMENT OF HISTORY

(i) One post of a Reader (Permanent). Scale Rs. 700-50-1250 with P.F. & D.A. benefits as per University rules.

Qualifications : (i) & (ii) Same as for Professor in Hindi above with post-graduate teaching experience of 5 years and 3 years experience of guiding research. Working knowledge of Hindi will be a desirable qualification.

2. The above salary scales are likely to be revised, in which case the qualifications as prescribed for revised scales will be applicable.

3. The University reserves the right to negotiate, if recommended by the Selection Committee, with suitable person or persons who may not have applied.

4. Candidates if called for interview will have to come at their own expense.

B B. Khare
REGISTRAR

ALIGARH MUSLIM UNIVERSITY

Advertisement No. 26/76-77

Applications, on the prescribed form, are invited for the following posts :

1. **Medical Social Worker, S.P.M. Department. Scale Rs. 325-560 (likely to be revised) plus allowances.**

Qualifications : M.S.W. or M.A. (Sociology)

Experience : Five years field work experience in Public Health in Community Organisation in a recognised institution or in the Department of Preventive Medicine of a Medical College.

Desirable : Preference will be given to those having research experience and publications.

2. **Technical Assistant, S.P.M Department, Scale Rs. 425-15-500-EB-15-560-20-700 plus allowances.**

Qualifications : B.Sc. with atleast three years Laboratory experience in the field of Preventive and Social Medicine Pathology Bacteriology in a Medical College

Desirable : Preference to those with experience of Public Health Laboratory work.

3. **Public Health Inspector, S.P.M. Department. Scale Rs. 330-10-380-EB-12-500-EB-15-560 plus allowances**

Qualifications : Must have passed Sanitary Inspector's examination from a recognised institution.

Desirable : Experience of field work in Public Health or in the Department of Preventive and Social Medicine of a Medical College.

4. **Public Health Nurses (2 posts), S.P.M Department. Scale Rs. 425-15-560-EB-20-640 plus allowances.**

Qualifications : High School or equivalent. Diploma in Public Health Nursing from a recognised institution

Desirable : B.Sc. (Public Health Nursing or equivalent).

5. **Auxiliary Nurse Midwife, S.P.M. Department. Scale Rs. 260-6-326-EB-8-350 plus allowances.**

Qualifications : Middle Class Passed with 2 years training in Auxiliary Nurse Midwifery from a recognised institution. Registered under any state.

6. **Senior Instrument Mechanic (Electrical Engineering Deptt.) Scale Rs. 425-15-500-EB-15-560-20-700 plus allowances.**

Qualifications : Certificate in special trade and atleast five years experience in a recognised institute.

7. **Junior Instrument Mechanics (Four posts), Electrical Engg. Department. Scale Rs. 425-15-560-EB-20-640 plus allowances.**

Qualifications : Must be thoroughly conversant with all types of Lathe work like facing, surfacing turning, multiple screw cutting (including various forms of screw thread) tape and curved turning etc. Should be able to work on other workshop machines like shaper, milling and drilling, etc. Ability to repair laboratory instruments like galvanometers, step clocks and watches desirable.

8. **Mechanic, Elect. Engg. Department. Scale Rs. 380-560 plus allowances.**

Qualifications : Must be thoroughly conversant with all types of Lathe work like facing, surfacing, turning, multiple screw cutting (including various forms of screw thread), tape and curved turning etc. Should be able to work on other workshop machines like shaper, milling and drilling etc. Ability to repair Lab. instruments like Galvanometers, step-clocks and watches desirable.

9. **Proctorial Inspector, Proctor's Office. Scale Rs. 330-10-380-EB-12-500-EB-15-560 plus allowances**

Qualifications : Bachelor's Degree or its equivalent. Experience of Security and Watch & Ward work. A good physique and personality and proficiency in games, sports and NCC.

Age : Below 50 years.

Note : Retired Government Officials if outstanding and suitable may also be considered and the qualifications and age restrictions could be relaxed but they will be considered for appointment only on contract basis.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) by sending self-addressed envelope of 23×10 cm. Last date for receipt of applications is **15th January, 1977**. Incomplete applications and those received late may not be considered.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class railway fare only.

(Jamalur Rahman)
REGISTRAR

PANJAB UNIVERSITY (CHANDIGARH)

(ADVERTISEMENT No. 24/76)

Applications are invited for the following posts, so as to reach the Registrar, Panjab University, Chandigarh, along with postal orders of Rs. 7.50 by **January 31, 1977.** The candidates from abroad may send their applications by **February 28, 1977.**

PAY-SCALES

1.	Professor Director-cum-Professor	Rs 1500-60-1800-100-2000-125/2-2500
2.	Reader	Rs. 1200-50-1300-60-1900
3.	Lecturer	Rs. 700-40-1100-50-1600

POSTS

1.	Director-cum-Professor of Physical Education	1
2.	Professor of Sanskrit	1
3.	Professor of Pharmaceutics	1
4.	Professor of Geology	1
5.	Professor of Zoology	1
6	Reader in Journalism	1
7.	Reader in Statistics	1
8.	Lecturers in Economics	2 (Permanent) 1 (Temporary)
9.	Lecturers in Law	3

QUALIFICATIONS

Professor and Director-cum-Professor of Physical Education

Essenrial :

(i) A first or high second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the subject concerned with bright academic record ;

(ii) Either a research degree of doctoral standard or published research work of high standard in journals of repute ;

(iii) About 10 years experience of teaching post-graduate classes at a University or College level and experience of guiding research.

Desirable only for Director-cum-Professor of Physical Education

(i) Adequate experience of organising University and Inter-University Tournaments and of counducting coaching camps in different games and sports.

(ii) Proficiency in Athletics or in a major game of the level of Inter-University participation.

Reader in Journalism

Essential

(i) A first or high second class Master's degree in Journalism/Communication from an Indian University or an equivalent qualification of a foreign University ;

(ii) At least second class post-graduate diploma in Journalism or degree of Bachelor of Journalism ;

(iii) Five years experience of teaching at a University or College level and experience of research and work in the field of Journalism.

Desirable

A Master's degree in a Social Science subject in addition to (i) above.

Reader in Statistics

Essential :

(i) A first or high second class Master's degree in Mathematical Statistics or Mathematics, of an Indian University or an equivalent qualification of a foreign University with at least a high second division or grade B+

(ii) Either a research degree of doctoral standard in Mathematical Statistics or equivalent research work of high standard in journals of repute.

(iii) About five years experience of teaching a variety of topics in Statistics to post-graduate classes at a University or College level.

(iv) Independent post-doctoral research work of high standard and experience of guiding research.

Desirable :

(i) Research specialisation in one of the following fields :—
(a) Probability Theory, (b) Statistical inference, (c) Multivariate Analysis and (d) Design of Experiments and Combinatorics

(ii) Ability to teach at least three of the following branches of Mathematical Statistics at the post-graduate level :—
(a) Probability Theory, (b) Stochastic Processes, (Statistical Inference, (d) Decision Theory, (e) Multivariate Analysis, (f) Design of Experiments and Combinatorics and (g) Applied Statistics.

Lecturers

Essential :

(a) A doctoral degree or published work of an equally high standard ; and

(b) Consistently good academic record with first or high second class (B plus Master's degree in the subject or an equivalent degree of a foreign University).

Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctoral degree or equivalent published work is not available or is not considered suitable a person possessing a consistently good academic record, (due weighrage being given to M. Phil or equivalent degree or research work of quality) may be appointed on the condition that he will have to obtain a Doctoral degree or give evidence of published work of equivalent high standard within five years of his appointment failing which he will not be able to earn furture increments until he fulfils these requirements.

Desirable only for Lecturers in Economics

Specialisation in Macro Economic Theory/Economotrics/Economics of Socialism/Economics of Population.

Persons already in service should route their applications through proper channel Incomplete forms and those received after the last date will not be entertained. Serving employees may, however, send their applications on the prescribed proformas direct to the University They may route another copy through their Departments. They will be allowed to present themselves for interview only on the production of a 'No Objection Certificate' from their employers. *Canvassing in any form will* disqualify a candidate.

Application forms can be obtained from the Office of the Finance and Development Officer, Panjab University, Chandigarh, by making a written request accompanied with self addressed stamped *envelope of 23 - 10 cms.*

JAWAHARLAL NEHRU UNIVERSITY

Advt. No. Aca. III 12 76

Applications are invited for the following positions:

A. **School of Social Sciences Centre for Political Studies**
   1. Associate Professor Fellow
   2. Assistant Professor Associate Fellow

   (Candidates who had applied for these positions in May/June 1976 against our Advt. No Aca. III 6/76 need not apply again)

Qualifications:

Essential:

Associate Professor Fellow:

(a) Consistently good academic record with at least a high second class Master's degree in Political Science or an equivalent qualification from an Indian/Foreign University;

(b) A Doctorate degree or published work of an equally high standard;

(c) About five years experience of teaching and/or research.

Assistant Professor:

(a) Consistently good academic record with at least a high second class master's degree in the appropriate discipline or an equivalent qualification from an Indian/Foreign University;

(b) A doctorate degree or published work of an equally high standard.

Associate Fellow:

(a) Consistently good academic record with at least a high second class Master's degree in the appropriate discipline or an equivalent qualification from an Indian/Foreign University;

(b) Some teaching and/or research experience.

Desirable:

For Associate Professor/Fellow and Assistant Professor/Associate Fellow: Specialisation in contemporary Political Theory, Imperialism, Theories of Revolution Processes of Indian Politics, Social Structure and Political Processes in Rural India.

3. **Associate Professor or Assistant Professor in Political Economy.**

Qualifications:

Essential:

- (a) Consistently good academic record with at least a high second class Master's degree in Economics or an equivalent qualification from an Indian/Foreign University:
- (b) A Doctorate degree in either (i) Theoretical Political Economy or *(ii) Political Economy applied to* the field of development; and
- (c) For Associate Professor, About five year's experience of teaching and/or research.

Desirable:

- (a) Some experience of teaching political Economy to Postgraduate students.
- (b) Publications in the field.

Centre for the Study of Regional Development

4. **Assistant Professor Associate Fellow for its Unit at Chandigarh.**

Qualifications:

- (a) Consistently good academic record with at least a high second class Master's degree in Economics or its equivalent qualification from an Indian/Foreign University.;
- (b) A doctorate degree or published work of an equally high standard: and
- (c) Good knowledge of statistical & Econometric methods and computer programming & should have done some empirical research.

B. School of International Studies

5. **Assistant Professor Associate Fellow in international Organisation.**

(Temporary but likely to continue)

Qualifications:

- (a) Consistently good academic record with at least a high second class Master's degree in Economics, Political Science or law or an equivalent qualification from an Indian Foreign University:
- (b) A doctorate degree in International Economics, International Law or International Organisation:
- (c) Preference will be given to those with research and/or teaching experience in respect of International Economic Relations/Institutions.

6. ***Assistant Professor/Associate Fellow* in South East Asian Studies.**

Qualifications:

Essential:

- (a) Consistently good academic record with at least a high second class Master's degree in one of the Social Science disciplines or an equivalent qualification from an Indian/Foreign University.
- (b) A doctoral degree or published work of an equally high standard on a subject relating to Modern South East Asia.
- (c) About two years' experience of teaching and/or post-doctoral research relating to Modern South East Asia.

Desirable:

- (a) Knowledge of Indonesian, Malay or Vietnamese.
- (b) Field work in South East Asia for academic purposes.

C. School of Environmental Sciences

7. ***Assistant Professor/Associate Fellow* in the following specialities of Geology.**
   1. Structural Geology & Tecton Physics.
   2. Petrology & Minerology
   3. Theoretical & Exploration Geophysics
   4. Computer & Mathematical Geology,
   5. Mineral Economics & Regional Geology, and
   6. Exploration Geology.

Candidates with specialisation in *more than one area would be preferred.*

Qualifications:

Assistant Professor:

- (a) Consistently good academic record with at least a high second class Master's degree in Geology or an equivalent qualification from an Indian Foreign University,
- (b) A Doctorate degree or published work of an equally high standard.

Associate Fellow:

- (a) Consistently good academic record with at least a high second class Master's degree in Geology or an equivalent qualification from an Indian Foreign University.
- (b) Some teaching and/or research experience.

D. School of Life Sciences

8. ***Technician Grade I***

Qualifications:

Essential:

- (a) B.E. B Tech. with specialisation in Instrumentation

  Or

  M.Sc. Ist Class with specialisation in Instrumentation Physics Electronics or Applied Physics:
- (b) **Age:** Between 18 and 35 years.

Desirable:

Experience of two years in Maintenance and repairs of laboratory instru*ments.*

E. Central Library

9. **Professional Assistant**

Qualifications:

Desirable:

- (a) Bachelor's Degree in Life Sciences Social Sciences/Humanities with second class.
- (b) Diploma or Degree in Library Science with second class;
- (c) **Age:** Between 18 and 35 years.

Desirable:

- (a) 3 years experience as Semi-Professional Assistant.

Scales of Pay

1. Associate Professor / Fellow: Rs. 1200-50-1300-60-1900
2. Assistant Professor / Associate Fellow: **Rs.** 700-40-1100-50-1600.
3. Technician Grade I: Rs. 550-25-750-EB-30-900.
4. Professional Assistant: Rs. 250-15-400 (Pre-revised).

Plus usual allowances as admissible to the members of the staff of the Central Universities.

Relaxation in any of the qualifications may be made in exceptional cases in favour of persons of high academic or professional distinction. It will also be open to the University to consider the names of suitable candidates who may not have applied.

The selected candidates for faculty positions will be expected to participate in the teaching and research programmes *in the concerned disciplines in* other Schools of the University as well as in the programmes offered in their own Centres of Studies.

Normally appointments of Fellows and Associate Fellows will be made on contract basis for a period ranging from one to three years.

Benefits of C. P. Fund-cum-Gratuity/G.P. Fund-cum-Pension-cum-Gratuity are available as per University Rules.

Persons already in employment should route their applications through proper channel. Due consideration will be given to candidates belonging to SC/ST at the level of Assistant Professor/Associate Fellow. Second Class (Mail) rail fare (both ways) will be paid to candidates invited to appear for interview from outstation by the shortest route subject to the production of rail receipt.

Applications, on the prescribed from obtainable free of cost from the University by sending a self-addressed and stamped envelope of 23cm x 10cm. size to the Co-ordinator (Academic Affairs), Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110057, should reach him latest by **10th January 1977.**

Candidates from abroad, applying for faculty positions, may apply on plain *paper (but their applications should reach* the University by the last date furnishing all the relevant information such as their names; date and place of birth, marital status; nationality; state of domicile; postal and permanent addresses; father's name and address; academic and professional attainments; full details of (a) publications and (b) research projects undertaken; Language (s) known; details of visits to foreign countries; and the names and addresses of at least two persons well acquainted with the candidates professional work (who should also be requested by the candidate to forward to the Co-ordinator (Academic Affairs) confidential report concerning the candidate.

LUCKNOW UNIVERSITY
LUCKNOW
Advertisement No. 27/1976

Applications are invited for the following posts:

Professor in the grade of Rs. 1500-60-1800-100-200-125 2-2500:

1. One Professor of Ancient Indian History & Archaeology.
2. One Professor for Regional Centre for Research & Training in Municipal Administration, Department of Public Administration.

Qualifications:

Essential: 1.(a) A doctorate in the subject of study concerned or a published work of a high standard in that subject and

(b) Consistently good academic *record (that is to say, the overall record of* all assessments throughout the academic career of a candidate) with first class or high second class (that is to say, within aggregate of more than 54 per cent marks) Master's Degree in the subject concerned or equivalent degree of a foreign University in such subject.

Where the selection Committee is of the opinion that the research work of a candidate as evidenced either by his thesis or by his published work is of a very high standard it may relax any of the qualifications specified in sub-clause (b) of Clause 1.

2. Experience of teaching post-graduate classes for not less than seven years' and/or having conducted and successfully guided research work for seven years' in a recognised Institution and having published work of high standard in the subject concerned.

Preferential: High academic distinctions.

3. *One Reader in Hindi in the grade* Rs. 1200-50-1300-60-1900.

Qualifications:

Essential: 1.(a) A doctorate in the subject of study concerned or a published work of a high standard in that subject; and

(b) Consistently good academic record (that is to say the overall record of all assessments throughout the academic career of a candidate) with first or high second class (that is to say, with an aggregate of more than 54 per cent marks) Master's Degree in the subject concerned or equivalent degree of a foreign University in such subject.

Where the Selection Committee is of the opinion that the research work of a candidate as evidenced either by his thesis or by his published work is of a very high standard, it may relax any of the qualifications specified in sub-clause (b) of Clause 1.

2. Experience of teaching honours post-graduate classes for not less than five years' and published research work of high standard in the subject.

Preferential: Experience of teaching post-graduate classes and guiding research.

Lecturers in the grade of:
Rs. 700-40-100-50-1600.

4. One Lecturer in Political Science.
5. One Lecturer in German.
6. One Temp. Lecturer in French
7. One Lecturer in Zoology.
8. One Temp. Lecturer in Mathematics.

Qualifications:

Essential: 1.(a). A doctorate in the subject of study concerned or a published work of a high standard in that subject; and

(b) Consistently good academic record (that is to say, the overall record of all assessments throughout the academic *career of candidate) with first class* or high second class (that is to say, with an aggregate of more than 54 per cent marks) Master's Degree in the subject concerned or equivalent degree of a foreign university in such subject

Where the Selection Committee is of the opinion that the research work of a candidate as evidenced either by his *thesis or by his published work* is of a very high standard, it may relax any of the qualifications specified in sub-clause (b) supra.

Preferential: Experience of teaching degree/honours/ post-graduate classes for two years.

General:

For purposes of qualifications required for the above posts, the Degree obtained *in a subject taught in a* Department which is subsequently constituted into separate Departments, shall be deemed to be Degree in the subject concerned for the newly constituted Departments.

Benefits of Provident Fund available as admissible under the rules on confirmation posts. Period of probation for permanent posts is one year. It is not necessary to fill any/all of the advertised posts.

For the post of Lecturers, other things being equal, preference will be given to Scheduled Castes/Scheduled Tribes candidates, who are considered fit. Such candidates should indicate in their applications that they belong to Scheduled Castes/Scheduled Tribes, attaching certificate from District Magistrate of the District to which they belong. *No other certificate for this purpose* will be entertained. In the cases of Scheduled Caste/Scheduled Tribe candidates interviewed by the Selection Committee, if suitable candidates are not available for appointment to the posts of Lecturers, the Selection Committee *may recommend appointment of suitable* candidates as Research Associates in the scale of Rs. 700-1300 for a period upto three years and these persons could later compete for the post of Lecturers as and when vacancies occur.

Applications on the prescribed form (available on request, accompanied with a self-addressed envelope of size 23 cm. x 10cm. free of cost, from the Office of the Registrar) with recent testimonials, publications etc. should reach the Registrar, Lucknow University, by **Friday, January 21, 1977**. The candidates who are in service must send their applications through the proper channel. Application forms to outstation candidates will be issued by post upto Friday, January 14, 1977.

(Kaushal Kishore)
OFFTG. REGISTRAR

ALIGARH MUSLIM UNIVERSITY ALIGARH

ADVERTISEMENT NO. 27/76-77

Applications, on the prescribed form, *are invited for the following posts:*

Candidates must possess Medical Qualifications included *in 1st or 2nd* Schedule or Part II of the 3rd Schedule (Other than licentiate Qualifications) of the Indian Medical Council Act, 1956. Holders of educational qualifications included in Part II of 3rd Schedule should fulfil the conditions stipulated in *Section 13(3) of the Indian Medical* Council Act, 1956. Must possess a *basic University or equivalent* qualification entered in Schedules under State/ Central Medical Registration Act, (For the posts at Sl. Nos. 1 & 2 only).

1. Reader in Pathology, J. N. Medical College, Scale Rs. 1200-50-1300-60-1900 plus allowances.

Qualification:

M. D. (Pathology).
M. D [illegible]
M. D. [illegible]
M. Sc. [illegible]
Ph. D. [illegible]
D. Sc.
Special [illegible]
M. R [illegible]
examination.
M. C. P. (Australia) —Do—

As Assistant Professor/Lecturer in *Pathology for three years in a Medical* College. (Experience in Advance Haematology and Immuno-Haematology).

2. Lecturers in Medicine (Three temporary posts—one likely to become permanent). J. N. Medical College Scale Rs. 700-40-1100-50-1600 plus allowances.

Qualifications:

M. D (Medicine). M. D. (Gen. Med.). M. R. C. P. Speciality Board of Internal Medicine (USA). The requisite recognised postgraduate qualification in the subject and three years teaching experience as Tutor/Resident Registrar in General Medicine of which one year should be after postgardnate qualification.

3. Reader in West Asian Studies (History)- Temporary. Scale Rs. 1200-50-1300-60-1900 plus allowances.

Qualifications:

(a) A first or a high second class Master's Degree in the subject concerned of an Indian University or an equivalent foreign qualification, (b) A research degree of a doctorate standard or published work of a high standard in Modern Arab History/Arabic Thought; and (c) Atleast *five years experience of teaching* post-graduate classes and some experience of guiding research. Knowledge of Modern Arabic.

Desirable: Knowledge of West Asian Social and Cultural Trends. Working knowledge of G. French, German or Russian.

4. Reader: Centre for Continuing Education. Scale Rs. 1200-50-1300-60-1900 plus allowances.

Qualifications:

First or high seond class Master's degree in Arts/Social Sciences: Atleast five years experience of teaching post-graduate classes: Atleast five years experience of conducting Continuing/Extension Programme in any institution.

Note: The Reader shall act as the Director of the Centre while being associated with teaching etc. in his field of speciality in the department concerned.

5. Lecturer in Psychology (Temporary but likely to become permanent) Women's College, Scale Rs. 700-40-1100 50-1600 plus allowances.

Qualifications:

Consistently good academic record with first or high second class (B+) Master's degree in Psychology or an equivalent degree *of a foreign university.*

Desirable: A doctor's degree or published work of an equally high standard. Teaching experience of degree/ Postgraduate classes. Research experience in one of the following areas: (a) Experimental Psychology. (b) Psychological Measurement, (c) Developmental Psychology.

(Cont. on Page 21)

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from Periodicals received in AIU Library during November, 1976

EDUCATIONAL PHILOSOPHY

Capelle, Jean. "Politics, a need and danger for education". *Oxford Review of Education* 2 (2) ; 1976: 157-60.

Mitchell, Basil. "Reason and commitment in the academic vocation" *Oxford Review of Education* 2 (2) ; 1976: 101-9.

EDUCATIONAL PSYCHOLOGY

Glaser, Robert. "Components of a psychology of instruction: Toward a science of design". *Review of Educational Research* 46 (1) ; Winter 76: 1-24.

Phillips, Shelley. "Contributions of psychology to education". *Oxford Review of Education* 2 (2) ; 1976: 179-96.

Strike, Kenneth A. "Logic of learning by discovery". *Review of Educational Research* 45 (3) ; Summer 75: 461-83.

EDUCATIONAL SOCIOLOGY

Bickel, Alexander M "Moral authority and the intellectual". *American Review* 21 (1) ; Autmn 76:95.

Coleman, James S. "Methods and results in the IEA studies of effects of school on learning". *Review of Educational Research* 45 (3) ; Summer 75: 335-86.

Hodgkin, Thomas "Scholars and the revolutionary tradition: Vietnam and West Africa". *Oxford Review of Education* 2 (2) 1976: 111-28.

Perkins, James A. "Is the university an agent for social reform?" *American Review* 21 (1) : Autmn 76 : 82-94.

Schwartz, Aba. "Migration age and education". *Journal of Political Economy* 84 (4) Pt. 1; Aug 76: 701-19.

Sharma, G.D. "Brain drain controversy : A survey". *Mainstream* 15 (11) ; 13 Nov. 76: 15-20.

EDUCATIONAL PLANNING

Bhandari, Arvind. "10+2+3 what does it add up to?" *Youth Times* 5 (6): 29 Oct -11 Nov. 76: 10-12.

EDUCATIONAL ADMINISTRATION

Boudon, Raymond and others "Short cycle higher education and the pitfalls of collective action". *Minerva* 14 (1) : Spring 76: 33-60.

"CRITERIA OF academic appointment in American universities and colleges: Some documents of affirmative action at work". *Minerva* 14 (1) ; Spring 76: 97-117.

Halliday Terence C. "Politics of universal participatory democracy: A Canadian case study". *Minerva* 13 (3) ; Autmn 75: 404-27.

McLachlan, Hugh V. "Universities, schools and democracy". *Oxford Review of Education* 2 (2) ; 1976: 171-78.

Schroeder, Roger G. and Adams, Carl R. "Effective use of management science in university administration". *Review of Educational Research* 46 (1) ; Winter 76: 117-31.

TEACHING AND TEACHERS' TRAINING

Loukes, Harold. "Morality and the education of the teacher". *Oxford Review of Education* 2 (2); 1976 : 139-47.

Marwick, Arthur. "History at the open university". *Oxford Review of Education* 2 (2); 1976 : 129-37.

Tobias, Sigmund. "Achievement treatment interactions". *Review of Educational Research* 46 (1); Winter 76: 61-74.

EDUCATIONAL TECHNOLOGY

Locatis, Craig N. and Gooler, Dennis D. "Evaluating second order consequences: Technology assessment and Education". *Review of Educational Research* 45 (2); Spring 75: 327-53.

EVALUATION

Meskanskas, John A. "Evaluating models for criterion-referenced testing : Views regarding mastery and standard-setting". *Review of Educational Research* 46 (1) ; Winter 76: 133-58.

Natrajan, V. "Question banks : Their use in Indian examinations". *University Affairs* (Delhi) 3; 15 Oct-15 Nov 76: 9-15.

———— "Restructuring of university examinations". *University News* 14 (11); Nov 76: 6-8.

ECONOMICS OF EDUCATION

Griliches, Zvi. "Wages of very young men". *Journal of Political Economy* 84 (4) Pt. 2; Aug 76: S 69-S 85.

Herman, William R. "University as a national asset". *Change* 8 (5): June 76: 31-7

Stannard, Russell "Why you get value for money at the open university". *Times Higher Education Supplement* (260); 15 Oct 76: 10.

PROFESSIONAL EDUCATION

"AGRICULTURAL UNIVERSITIES : Will a committee help". *Economic and Political Weekly* 11 (44): 30 Oct 76: 1711.

Kahlon, A.S. "Role of farm universities". *University News* 14 (11): Nov 76: 9-10.

Stevenson, Olive. 'Some dilemmas in social work education". *Oxford Review of Education* 2 (2); 1976: 149-55.

ADULT EDUCATION

John, V.V. "When each one teaches one". *Youth Times* 5(6); 29 Oct-11 Nov 76: 14-15.

London, Herbert I. "Case for nontraditional learning". *Change* 8 (5): June 76: 25-9.

McClure, Peter. "Grubstake: A radical proposal". *Change* 8 (5); June 76: 30, 38-44.

R.K. Singh. "Open university". *University News* 14 (11); Nov 76 : 4-5, 8.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

"ACADEMIC FREEDOM in South Africa : The open universities in South Africa and academic freedom." *Minerva* 13 (3): Autmn 75: 428-65.

Cleverley, John. "China's succession battle stirs higher education debate". *Change* 8 (5); June 76: 15-17.

Ghosh, S.C. "Dalhousie, Charles Wood and the education despatch of 1854". *History of Education* 4 (2) ; Summer 75 : 37-47.

"TAMING THE universities : Thailand". *Economic and Political weekly* 11 (45); 6 Nov 76 : 1743-4.

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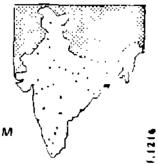

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Printed & Published by ANJNI KUMAR, on behalf of the Association of Indian Universities (formerly known as Inter-University Board of India), Rouse Avenue, New Delhi-110002 Grams : UNIBOARD. Phone : 276504 and 273037. Printed at DELHI UNIVERSITY PRESS, Delhi-7